PANZER I & II

Spearheads of Blitzkrieg 1934–1945

TANK CRAFT

Robert Jackson

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Front cover. Top: Tamiya 1/35 model Panzer II Ausf C Polish Campaign (Bill Stewart). Photos from left: An uparmoured Panzer II on the Western Front, May 1940, with a Panzer I in the background / A Panzer I Ausf.I on the banks of the Brda River, northwest Poland, September 1939 / An NCO Panzer II commander checks his position during the advance through the Ardennes, May 1940 / A Panzer II of the Afrika Korps and its crew in the Western Desert, 1941. Profiles: (top) Panzer II Ausf C of the 5th Panzer Regiment, Afrika Korps, Tobruk 1941 (bottom) Panzer I Ausf B, Afrika Korps (Tom Cooper).

The road that led to the development of the tanks that would play a massive part in enabling the armies of the Third Reich to achieve the series of crushing victories that stunned the world in the early years of the Second World War was long and tortuous. It was a road lit with flashes of ingenuity, and also one littered with subterfuge and deceit.

The Treaty of Versailles of 1919, drafted to ensure that a defeated Germany would never again be in a position to wage an offensive war, deprived that nation of a navy, an air force and much of its army, leaving little more than a token defensive force of 100,000 men. Germany was not permitted to build or purchase submarines, aircraft or tanks. The German Army, the Reichswehr, was forbidden to have a general staff, although it continued to conduct the typical functions of one under the disguised name of Truppenamt (Troop Office), and during this period many of the leaders of the future Wehrmacht first formulated the ideas and plans that were to be put into effective practice a few years later.

At the end of the First World War, in one particular area – the development of armoured fighting vehicles – Germany had lagged far behind the Allies. Much of the development work that had taken place in this field was attributed to one man, an engineer named Joseph Vollmer, who in the early years of the twentieth century had designed a series of heavy vehicles for civilian use, including the world's first truck, the Durch tractor-trailer of 1903.

During the First World War Vollmer was appointed chief designer for the German War Department's motor vehicle section, where his work culminated in the development of Germany's first viable tank, the 30-ton A7V Sturmpanzerwagen. Vollmer faced many difficulties, not the least of which was that the Germans gave the development of armoured fighting vehicles much lower priority than did both the British and French. By 1917 the Germans were on the defensive, and it was argued that tanks, as offensive weapons, had no place in defensive strategy. Nor did they have a part to play in the war on the Eastern Front, for the Russian armies were on the verge of collapse. A special committee, called the A7V Committee for security

reasons, was formed in October 1917 to study the concept of the armoured fighting vehicle, and by the end of the year it had designed a workable machine, but with no official impetus behind the idea months passed before an order was placed for 100 examples of the A7V. In fact, the Germans only ever managed to produce twenty A7Vs, relying on captured British and French AFVs to bolster their embryo armoured force.

A mixture of both (to be precise, four A7Vs and five captured British Mk IVs) played an important part during the Ludendorff Offensive of 21 March 1918, advancing in the wake of an artillery barrage to a depth of five miles to penetrate the British defences at St Quentin, and on the 24 April the first tank-versus-tank engagement in history occurred at Villers Bretonneux between British Mk IVs and German A7Vs. Fifteen German tanks were involved, attacking through morning mist, smoke and gas in three groups towards their objectives, the Bois d'Aquenne and the villages of Villers Bretonneux and Cachy. The three tanks in the leading German group, attacking British infantry positions, were engaged by three Mk IVs, one armed with a 57mm gun and the other two, so-called 'female' Mk IVs, with machine guns. In a protracted engagement, the Mk IV armed with the 57mm gun knocked out one of the A7Vs and hit two others, although without noticeable effect. The encounter took place when the two groups of tanks were about 400 yards apart.

The A7V's crew normally consisted of up to seventeen soldiers: driver, mechanic, mechanic/ signaller and twelve infantrymen (six machine gunners and six loaders) and two artillerymen (main gunner and loader), all commanded by an officer who was usually a lieutenant.

A disabled and abandoned A7V being examined by New Zealand soldiers.

The Germans used numbers of captured British tanks. Some, like this Mk IV, were used to quell insurrections in the immediate aftermath of the war.

French soldiers inspecting a captured A7V, complete with graffiti, at Villers-Bretonneux. This tank, named *Mephisto*, was later recovered by Australian forces and is today displayed at the Australian War Memorial, Canberra.

Joseph Vollmer's Leichter Kampfwagen LK II served with the Swedish Army as the Stridsvagn m/21.

The Spartan interior of the Stridsvagn m/21.

In contrast to the heavy A7V, Vollmer's next design, the Leichter Kampfwagen LK 1 was designed as a cheap light cavalry tank. It was based on a Daimler car chassis, using existing axles to mount sprocket and idler wheels. It was the first German armoured vehicle to feature a turret, armed with a 7.92mm MG08 machine gun. Two prototypes only were produced in 1918, these being used to carry out experimental trials in connection with Vollmer's next design, the Leichter Kampfwagen LK II.

The layout of the LK II closely followed that of the LK I, but incorporated a rotating turret mounted on the rear hull and armed with a 37mm or 57mm Krupp Maxim-Nordenfelt gun. Armour protection was between 8 and 14mm, giving it an all-up weight of 8.75 tons. The vehicle was powered by a Daimler-Benz Model 1910 4-cylinder 55–60hp petrol engine, producing a maximum speed of 14–18kph and a range of between 65 and 70 kilometres. Two prototypes were completed in June 1918 and an order issued for 580 production units.

These were never completed, but in 1921 the component parts of ten LK IIs were secretly purchased by Sweden at a cost of 200,000 Swedish krona and assembled at the naval shipyards in Stockholm under the designation Stridsvagn m/21. The completed tanks were issued to the Swedish Life Guards Armoured Unit, which was activated in 1923.

In the Truppenamt, a small cadre of officers became convinced that

armoured warfare was the key to success on the battlefield. Denied tanks with which to experiment, forbidden even to develop ways of turning theory into practice, they assembled all available literature on armoured vehicles and their use that had been published in Britain and France. They studied them, and they learned. One such officer was Heinz Guderian, who in 1922 was attached to the Motorized Troops Department of the Truppenamt. Guderian later wrote:

> It was principally the books and articles of the Englishmen, Fuller, Liddell Hart and Martel, that excited my interest and gave me food for thought. These far-sighted soldiers were even then trying to make of the tank something more than just an infantry support weapon. They envisaged it in relation to the growing motorization of our age, and thus they became the pioneers of a new type of warfare on the largest scale.
> I learned from them the concentration of armour, as employed in the battle of Cambrai. Further, it was Liddell Hart who emphasized the use of armoured forces for long-range strokes, operations against the opposing army's communications, and also proposed a type of armoured division comprising panzer and panzer-infantry units. Deeply impressed by these ideas I tried to develop them in a sense practicable for our own army. So I owe many suggestions of our further development to Captain Liddell Hart.

Guderian quickly became an acknowledged expert on armoured warfare, but he had yet to make his acquaintance with an actual tank. That opportunity did not arise until 1929 when, as a newly promoted major, he was sent to Sweden to observe military exercises and given the chance to drive a Stridsvagn m/21, one of the ten LK II light tanks delivered from Germany in 1921.

Heinz Guderian, one of the most talented exponents of armoured warfare, seen on the Russian Front in 1942. His book *Panzer Leader*, written in 1952, became a textbook on armoured warfare strategy.

Meanwhile, the Reichswehr had been at pains to find a means of circumventing the restrictions imposed by the Treaty of Versailles on the use of tanks, and in 1925 the Waffenamt (Weapons Department) issued contracts to three firms – Rheinmetall, Krupp and Daimler – to design prototypes of tracked vehicles that might be converted into medium tanks. For security reasons, the vehicles were given the code-name Grosstraktor (large tractor).

During this period, the Reichswehr, under the command of General Hans von Seeckt, had been conducting secret negotiations with the Soviet Union, the aim being to establish joint training facilities in the USSR. In 1925 a military flying school was set up at Lipetsk, on the banks of the Voronezh river in the Don Basin. A chemical weapons facility was also built, and in 1926 an agreement was signed which set out the details of the organization and funding necessary to establish a tank training school at Kazan in

Tatarstan, some 500 miles east of Moscow at the confluence of the Volga and Kazanka rivers. A team of German engineers arrived in the summer of 1927 and set about modifying a pair of Hanomag agricultural tractors, fitting armour plating and gun mountings to produce primitive self-propelled guns. Such modifications included the mounting of a 37mm anti-tank gun on a pedestal, the latter having a traverse of 30 degrees, and a machine gun on the rear. Another, more powerful 50hp tractor was fitted with a 75mm cannon mounted on a pedestal with a full 360-degree traverse. In effect, this vehicle was the ancestor of the self-propelled guns that would have such a profound effect on the battlefields of the future.

The Rheinmetall and Krupp Grosstraktor vehicles were completed in 1928, followed by the Daimler-Benz vehicles in 1929. Early that year the Kazan tank school became fully functional, and in May the first six Grosstraktor arrived from Germany, each company providing two examples. The vehicle weighed about 18 tons and was the first tank to mount a 75mm gun in a rotating turret. It carried a crew of six and had a limited amphibious ability, being able to ford rivers and shallow bodies of water. The Grosstraktor was used to train Reichswehr and Soviet tank officers at Kazan until 1933, when the four vehicles that were still operational were sent back to Germany and assigned to the newly formed 1st Panzer Division.

The Grosstraktor was not the only armoured vehicle to be developed in secret. In 1928, Rheinmetall and Krupp received contracts to develop light tanks, each producing a single prototype designated Leichte Traktor (Light Tractor) VK 31 for security reasons. Both vehicles were powered by a 100hp Daimler-Benz M36 truck engine and carried a four-man crew. Armament comprised a 37mm KwK L/35 cannon and a light machine gun, mounted in a turret designed by the Swedish Landsverk company. The vehicles were shipped to Kazan in 1930 for extensive testing, and after some modifications an order was placed for 289 units, but this was later cancelled as more viable designs were introduced.

The Rheinmetall Grosstraktor.

The Krupp Grosstraktor pictured during trials.

The Grosstraktor designs served as prototypes for a heavy tank, the Neubaufahrzeug. Too unwieldy to be of practical use, it was used mainly for propaganda purposes.

The Neubaufahrzeug under construction.

The first of these, after development and refinement, would become the Panzer I.

Panzer I & II Design and Development

In 1933, following the Nazi Party's seizure of power in Germany and the subsequent unilateral abrogation of the Versailles Treaty, the Heereswaffenamt (Army Armament Department) issued a requirement for the development of an armoured infantry support vehicle in the five-ton class, capable of being armed with two machine guns in a rotating turret. The firms that had been involved in the clandestine development of armoured vehicles in the 1920s – Rheinmetall, Krupp and Daimler-Benz – were naturally involved, but they were now joined by Henschel of Kassel and MAN (Maschinenfabrik Augsburg-Nürnberg).

It was the Krupp design that was accepted. Its chassis owed much to the British Carden-Loyd tankette, two of which had been secretly purchased from Russia in 1932. A cross between a light tank and a machine-gun carrier, the Carden-Loyd tankette was a huge success on the export market, being cheap to purchase and reproduce. The Russians used it to develop their own T-27 design. The whole purpose of the tankette was the rapid deployment of troops armed with machine guns, which were not intended to be fired from the vehicle itself, although a tripod mounting for a machine gun was attached to the front of the hull. The tankettes could also be used to tow light howitzers. The Germans were very familiar with the tankette, as examples had been used for training at Kazan, and they knew it to be reliable and versatile.

Again for reasons of secrecy, the Krupp design was given the designation La.S, an abbreviation of Landwirtschaftlicher Schlepper, or agricultural tractor. Five prototypes were ordered, three of which were sub-contracted to Henschel. These were delivered late in 1933 and tested at Kummersdorf, which was to become a principal proving ground for German weapons of all kinds, including rockets. From the outset, the La.S was intended as nothing more than an interim armoured vehicle, a stopgap until the development of

two new medium tanks, the Panzer III and IV, was completed. It was these vehicles that would form the main equipment of the new German armoured divisions, the creation of which had been approved by Hitler as a matter of priority. The dual role of the La.S was to train the Wehrmacht's new generation of Panzer troops, and also to prepare the resurgent armaments industry for the mass production of the future medium tanks.

The first fifteen La.S vehicles had open hulls, the superstructure and turrets still being under development by Daimler-Benz. After further trials in 1934, with superstructure and turrets now added, the fifteen vehicles were re-designated MG Panzerwagen – Versuchskraftfahrzeug 617 (Machine Gun Armoured Truck – Trials Vehicle 617). On 15 April 1934, the fifteen completed vehicles were formally presented to Adolf Hitler by Colonel Heinz Guderian, then Chief of Staff to the Director of Mechanized Troops, General Oswald Lutz. With no superstructure the interior of the vehicle was completely open, the vehicle's crew comprising a student driver and instructor, with room for three more students behind them. Total weight was 3.5 tons.

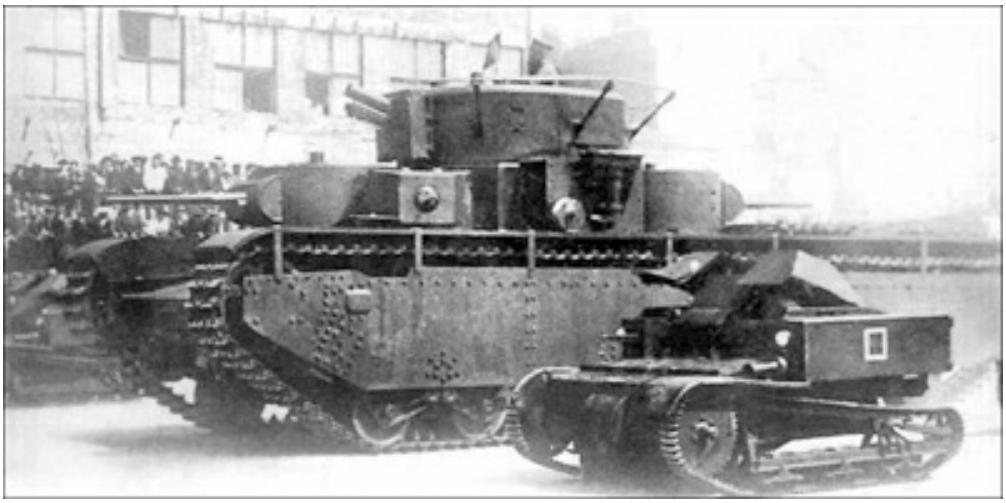
A Carden-Loyd tankette in service with the British Army being shown to George V.

With Hilter’s enthusiastic approval, an order for 150 La.S vehicles was placed with Krupp in July 1934, with Henschel as the principal sub-contractor. Intended solely for use as training vehicles, these did not include the rotating turret specified for the main production version, known initially as the 1/La.S Ausführung A. The latter was lightly armoured, with steel plate only 13mm (0.51in) thick. It carried a two-man crew, the driver seated inside the chassis controlling the vehicle by conventional steering levers. The commander was positioned in the turret, where he also acted as the gunner; a voice tube enabled him to communicate with the driver.

The turret, produced by Daimler-Benz, was equipped with a pair of Dreyse 7.92mm MG13 medium machine guns, with a rate of fire of 650 rounds per minute, the total of 2,250 rounds of ammunition being stowed in five bins, each holding various numbers of 25-round magazines. Power was provided by a 57hp Krupp M305 four-cylinder air-cooled petrol engine, giving a top speed of 37kph (23mph) and a range of 145 kilometres (90 miles) with 144 litres of fuel. In 1938, by which time 477 examples had been produced, the vehicle received the official designation of PanzerKampfwagen I Ausführung A (Armoured Fighting Vehicle I Model A). The tank weighed in at 4.5 tons.

Testing the Ausführung A had revealed many defects, of which the most serious was the inadequate performance of the engine. Many of the problems were eradicated with the introduction of the much improved Ausführung B, starting with the engine, which was replaced by a 100hp water-cooled six-cylinder Maybach NL38 TR. The bigger engine required an extension of the vehicle’s chassis by 40cm (16in), which in turn allowed the improvement of the tank’s suspension, adding an extra bogie wheel and raising the tensioner. These improvements increased the vehicle’s weight by 0.4 tons. Production of the B Model started in August 1936 and ended in the summer of 1937 after 399 had been built in two series, the La.S 5a and 6a. A further 159 were built as command tanks and 295 chassis were built as training tanks, without turrets. Another 147 training tanks were produced as convertible chassis, with the option of upgrading them to combat status by adding superstructure and turret.

A Carden-Loyd Mk VII light tank.



A Russian T-27 tankette, based on the Carden-Loyd design, is dwarfed by a massive T-35 of the 5th Independent Tank Brigade, Moscow.

A Panzer I Ausf A of the 2nd Panzer Regiment undergoing training for amphibious operations.

The formation of the Wehrmacht's new panzer divisions, meanwhile, had been proceeding as a matter of priority. The first three were established on 15 October 1935: 1st Panzer (General Maximilian von Weichs) at Weimar, 2nd Panzer (Colonel Heinz Guderian) at Wurzburg and 3rd Panzer (General Ernst Fessmann) at Berlin. Each division had one armoured brigade comprising two regiments, each with two battalions (*abteilungen*) of four companies with 32 light tanks. The establishment of each division, including vehicles of all types, was 651. The armoured strength, as well as the La.S (later Panzer I) vehicles, included a motley collection of tanks transferred back to Germany following the closure of the tank training school at Kazan in 1933.

Panzer Is for Export

In 1936, a single Panzer I Ausführung A was sold to Bulgaria, which showed an interest in purchasing more, and a variant designated Leichte Kampfwagen B, fitted with a 20mm gun and a Krupp M311 V-8 petrol engine, was developed for export. Three examples were built, but the Bulgarian order was cancelled. Spain was the principal foreign customer, receiving 122 Panzer Is during the Spanish Civil War, and eight Ausführung Bs were supplied to Hungary together with six examples of the command tank version in 1942.

Also in 1936, at least fifteen Panzer I Ausf A tanks were shipped to China, serving with the 3rd Armoured Battalion of the Chinese Nationalist Army in Nanking.

A Panzer I Ausf F on display at the Belgrade Military Museum.

Panzer I Variants

Panzerkampfwagen I Ausf C
This light tracked reconnaissance vehicle was a comprehensive redesign of the Panzer I, and had little in common with the earlier models. It introduced inter-leaved track wheels (*schachtellaufwerk*) used in many later panzer designs. It was equipped with a 20mm cannon and a 7.92mm machine gun. Forty examples were produced from late 1942 by Krauss-Maffei and Daimler-Benz. Two were evaluated on the Eastern Front and the remainder were issued to units in Normandy in 1944.

Panzerkampfwagen I Ausf F
This variant was an infantry assault tank with upgraded armour and two machine guns. Thirty units were built between April and December 1942, eight being evaluated on the Eastern Front.

Munitionsschlepper auf Panzerkampfwagen I Ausf A unloading cordite charges for a German howitzer.

Munitionsschlepper auf Panzerkampfwagen I Ausf A
Also bearing the designation SdKfz 111, this was an ammunition carrier intended for the front-line support of tanks. Fifty-one examples were converted from the Panzer I Ausf A in 1939. It was unarmed, the turret having been removed and a sheet of armour plate placed over the opening. It served in Poland and France. Empty weight was 5.0 tons and range 95km (60 miles).

Brückenleger auf Fgst Panzerkampfwagen I Ausf A
This variant was an attempt to mount bridge-laying equipment on the chassis (*fahrgestell*) of the Ausf A, but proved impracticable because of the vehicle's weak suspension.

Flammenwerfer auf Panzerkampfwagen I Ausf A
Following some experimentation in the Spanish Civil War, this variant was fitted with a portable flamethrower in place of one of the machine guns. It was a simple field modification and was not a permanent installation. Its only reported operational use was by the 5th Light Division in the Battle of Tobruk.

Kleiner Panzerbefehlswagen (kl Pz Bef Wg)
Designated SdKfz 265, this was a modification of the Ausf A intended for use as a command vehicle for Panzer units. A fifth road wheel was added, resulting in a longer chassis, and the turret was replaced by a built-up superstructure housing FuG2 and FuG6 radios and other command equipment. A single MG13 or MG34 on a ball mount could be fitted at the front of the superstructure. Daimler-Benz produced 184 units, and six more were Ausf A conversions.

Panzerkampfwagen I Ausf B ohne Aufbau
This vehicle used the same chassis as the Ausf B, but was open-topped, the turret and superstructure being deleted. Weighing 4.0 tons, it was much lighter than the standard Ausf B and was also shorter, with a length of 1.35m.

Designed to provide Panzer units with a tracked recovery and repair vehicle, 164 units were produced alongside the standard Ausf B vehicles. However, the introduction of larger tanks meant it was unable to do recovery work, and by 1940 it was being transferred to training duties.

4.7 cm PaK (t) (Sf) auf Panzerkampfwagen I Ausf B

Commonly known as the Panzerjäger I, this version marked Germany's first attempt to field an armoured tank destroyer. The turret was removed and a 4.7 cm PaK (t) anti-tank gun (captured from Czechoslovakia) with a tall wrap-around gun shield was installed. Made from 14.5mm thick armour plate, the shield offered no protection to the rear or above. The gun was capable of 35 degrees of traverse and had an elevation from minus eight degrees to plus twelve degrees. Eighty-six rounds of anti-tank ammunition were carried. At 6.4 tons the vehicle was heavier than the standard Ausf B, although performance was similar.

15 cm sIG 33 (Sf) auf Panzerkampfwagen I Ausf B

Sometimes known as the Bison, this was an attempt to mount heavy assault guns on the Ausf B chassis, the largest being the 150mm slG33. The vehicle was not a great success, the heavy weight of 8.5 tons tending to overstress the chassis. Thirty-eight were converted in 1940 and issued to six SP gun companies. Ammunition was carried in a separate vehicle.

Ladungsleger auf Panzerkampfwagen I Ausf B / Abwurfvorrichtung auf Panzerkampfwagen I Ausf B

This somewhat cumbersome designation was applied to a field modification kit that effectively turned the Panzer I Ausf B into an explosives layer, transporting a 50kg explosive demolition charge that could be used to destroy fortified positions. About 100 Ausf B tanks were converted and issued to the armoured engineers company of each pioneer battalion.

Flakpanzer I

A rare modification that attempted to make the Panzer I into a self-propelled anti-aircraft gun was the Flakpanzer I that was not produced widely due to limited operational utility.

This Kleiner Panzerbefehlswagen (kl Pz Bef Wg) is on display at the British Army's Tank Museum, Bovington, Dorset.

This image of Panzerjäger I antitank vehicles gives a good impression of the exposed crew

positions.

A 15cm stG assault gun mounted on the chassis of a Panzer I Ausf B.

This photograph depicts a Ladungsleger auf Panzerkampfwagen I Ausf B on the left. The loading arm could traverse forwards or to the rear, as seen here.

Flakpanzer I vehicles mounting a range of light anti-aircraft weapons. Only one battalion was armed with the Flakpanzer I, and it was destroyed during the Battle of Stalingrad.

The small size of the Panzer I is apparent in this image. Nevertheless, it was quite effective as an infantry support vehicle in the early months of the Second World War.

The Panzer I Ausf F was produced in small numbers in 1940. It was intended as an infantry support tank from the outset.

Mechanics carrying out maintenance work on a Panzer I, or at least thinking about it.

Panzer II

By the mid-1930s, it was apparent to the Waffenamt that development of the Panzer III and IV medium tanks was falling badly behind schedule, and in July 1934 the decision was taken to introduce an interim tank in the ten-ton class, armed with a quick-firing 20mm cannon and a machine gun. Prototypes were built by Krupp, Henschel and MAN, and following trials MAN was selected to build the chassis and Daimler-Benz the superstructure. Ten vehicles were completed by the end of 1935 and allocated the designation Panzerkampfwagen II (2cm) Sd.Kfz.121 Ausführung a1. In total, 75 examples of the limited pre-series Ausf a vehicles (the designation not to be confused with that of the production Ausf A) were built between May 1936 and February 1937.

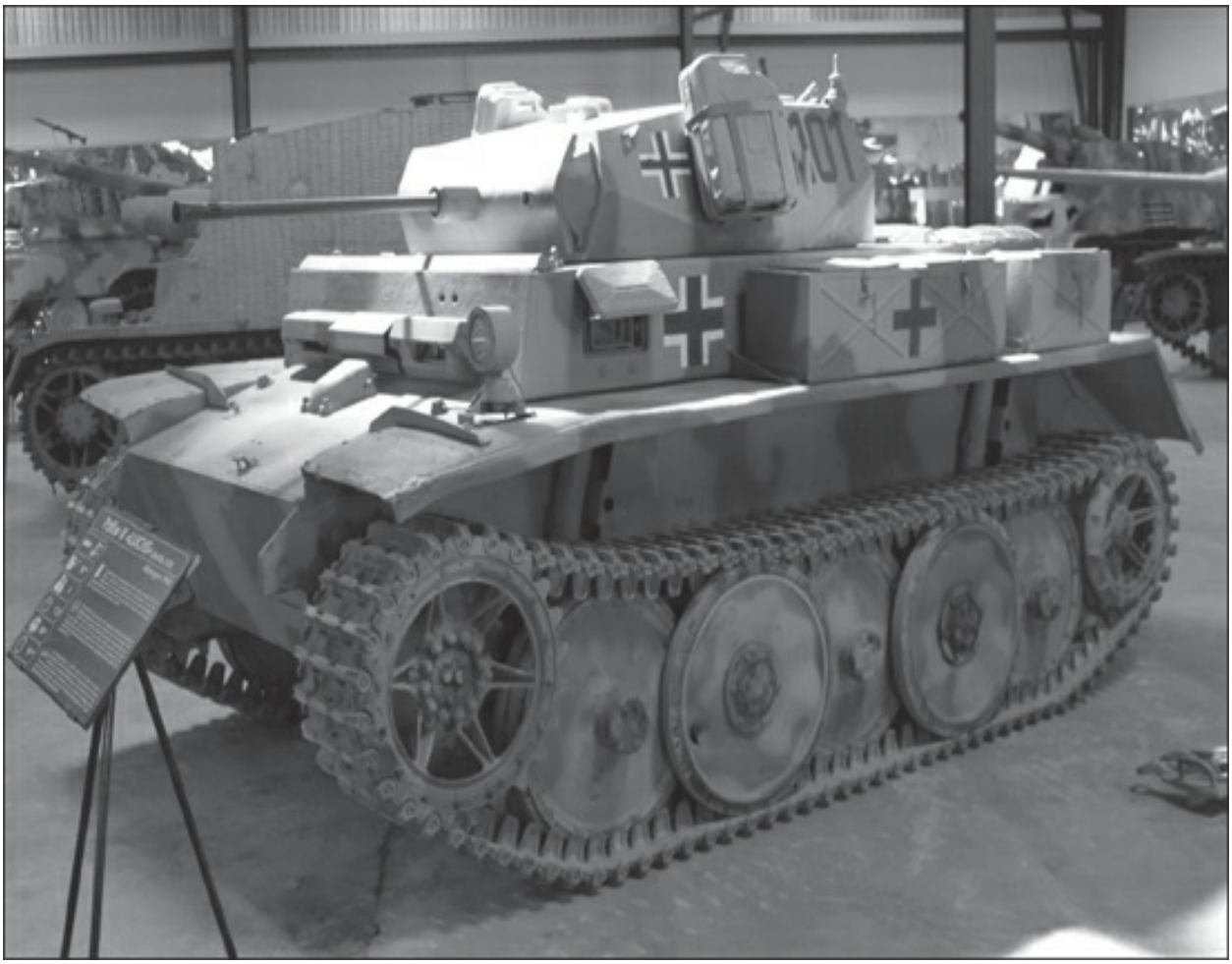
The initial series was followed by 25 examples of the Panzer II Ausf b (again, not to be confused with the production Ausf B) which embodied a number of improvements, including a major reworking of the suspension resulting in a wider track and an increase in hull length to 4.76m. The vehicle was fitted with a 140hp Maybach HL62TR engine and new drivetrain components, and deck armour for the superstructure and turret roof was increased to 10–12mm, raising the all-up weight to 7.9 tonnes.

Panzer II Ausf a1 Specifications

Crew: 3
Engine: Maybach 100hp HL57TR with 6-gear transmission plus reverse
Weight: 7.6 tons
Dimensions: Length 4.38m, width 2.14m, height 1.95m
Speed: 40kph
Range: 200km

Communications: FuG5 radio
Main armament: 20mm KwK turret-mounted gun with TZF4 sight
Secondary armament: Co-axial MG34 7.92mm machine gun
Ammunition: 180 rounds 20mm and 2,250 rounds 7.92mm
Turret: 360-degree hand traverse, plus 20 degrees elevation and minus 20 degrees depression
Armour: 13mm front, side and rear; 5mm bottom

The last of the limited production series was the Ausf c, in which the six small road wheels were replaced with five larger independently sprung road wheels and an extra return roller fitted, bringing the total to four. The tracks were further modified and the fenders widened. These modifications increased the total length to 4.81m and width to 2.22m. Twenty-five units of this model were built in March–July 1937 and were the true prototypes of the first production model, the Ausführung A.



The Panzer II Ausf L Luchs was the most advanced tank of the Panzer II series.

This model, which entered production in July 1937, had upgraded armour of 14.5mm on all sides as well as the floor plate. It was superseded by the Ausführung B in December 1937, introducing only minor changes. The Ausführung C, introduced in June 1938, became the standard production model; in all, 1,113 examples of the Panzer II Ausf c, A, B and C were built up to April 1940, several sub-contractors being used in the production process.

Meanwhile, a new model, the Ausf D, had been developed for use by the cavalry divisions. This was fitted with a completely new torsion bar suspension with four road wheels. The hull and superstructure were redesigned, although the Ausf C turret was retained. The engine was a Maybach HL62TRM with a seven-gear transmission, including reverse, giving a road speed to 55kph. The Ausf E was basically similar,

incorporating only minor improvements. In all, 143 Ausf D and E were built by MAN from May to August 1938.

The last major tank version of the Panzer II was the Ausführung F, which weighed 9.5 tons and incorporated a single piece of 35mm frontal armour plate with a redesigned visor. A dummy visor was fitted next to it to confuse enemy gunners. The superstructure and turret armour was also upgraded to 30mm at the front and 15mm at the sides and rear. A new commander's cupola and some minor alterations to the suspension completed the redesign. Production ran to 524 examples from March 1941 to December 1942.

A contract placed with MAN and Daimler-Benz in June 1938 resulted in the Ausführung G, a fast reconnaissance tank with a 145hp engine giving a top speed of 50kph, which was later increased to 60kph when a 200hp engine was installed. Planned production was 75 units, but only twelve vehicles appear to have been completed and delivered from October 1940. Weight was 9.2 tons.

The Ausführung J stemmed from a requirement, issued at the end of 1939, for a variant with greatly strengthened frontal armour of 80mm, which raised the weight to 18 tons and reduced the top speed to 30kph. Main armament was a 20mm KwK38 L/55, supported by an MG34 machine gun. Thirty units were built from December 1940, but only a few were delivered to combat units, othersbeing used by recovery units. An order for 100 more vehicles was cancelled. A similar fate overtook the planned Ausführung H and M variants, designed as fast tanks fitted with the Maybach 180hp engine producing a maximum speed of 65kph. They were to have had a 28mm KwK main gun weighing 150kg.

A Panzer II training vehicle, minus its superstructure.

Panzer II light tanks on manoeuvres.

A Panzer II Ausf A undergoing off-road trials.

Four of the Ausführung M prototypes were used as development vehicles for the Panzer II Ausf L Luchs (Lynx) light reconnaissance tank, the only Panzer II model to enter series production with overlapping/interleaved road wheels and ‘slack track’ configuration, allowing the track to droop and run along the top of the road wheels, an arrangement that permitted better weight distribution and gave the ability to traverse soft ground with less likelihood of becoming bogged down. The Luchs was armed with a 20mm KwK38 cannon with 330 rounds, and an MG34 machine gun with 2,250 rounds. The vehicle weight 11.8 tons, and its 180hp Maybach HL66P engine gave it a top speed of 60kph. In June 1942 MAN received a contract to build 800 units, of which the first 100 were to have the 20mm gun; it was envisaged that the rest would be armed with a 50mm KwK39 L/60 gun installed in an open turret, but this plan was abandoned and only the original 100 vehicles were completed between September 1943 and January 1944.

A Panzer II Ausf B travelling cross-country.

A Panzerkampfwagen II Ausf B (Sd.Kfz.121) undergoing river-crossing trials.

A Panzer II Ausf D.

Panzer II on a tank transporter.

Civilians and soldiers watch as Panzer IIs are transported on railway flat cars just before the invasion of Poland.

Panzer II Conversions and Developments

Panzer II (Flamm)
Based on the same suspension as the Ausf D and E tanks, the Flamm was a flame-throwing variant fitted with a new turret mounting a single MG34 machine gun and fitted with two remotely controlled flamethrowers mounted in two small turrets at each front corner of the vehicle. Each flamethrower could cover an arc of 180 degrees, and the turret had a full traverse of 360 degrees. The flamethrowers were provided with 320 litres of fuel and four tanks of compressed nitrogen, the latter built into armoured boxes on each side of the superstructure. The frontal armour was 30mm, with 14.5mm at the sides and rear, while turret armour was 20mm. The vehicle weighed twelve tons and had a length of 4.9m. One hundred and fifty-five Flamm vehicles were built from January 1940 to March 1942, 43 being Panzer II Ausf D and E conversions and the rest new vehicles. The Panzer II (Flamm) was deployed to the Russian Front but proved vulnerable because of its limited armour, and surviving vehicles were withdrawn in December 1941 for conversion to tank destroyers.

Panzer II mit Schwimmkörper
One of the more interesting Panzer II developments was the Panzerkampfwagen II mit Schwimmkörper amphibious tank, issued to the 18th Panzer Regiment, formed in October 1940 as part of the force intended to invade England. The basic component comprised two large pontoons, one mounted on either side of the vehicle and detachable once the Panzer II was ashore. The tanks were specially sealed, an inflatable rubber ring being fitted to the turret, and modifications made to the engine exhaust and cooling. A propeller linked to the engine by a universal joint and an extended shaft provided motive power in the water, and a rudder was mounted aft of the

propeller. A speed of up to 6 mph in calm water was claimed, as was an ability to operate in conditions up to sea state 4. Development was halted with the abandonment of the invasion plan, and the tanks were subsequently used in the conventional manner during the early phase of the Russian campaign.

A 15cm stG33 (sf) gun mounted on a lengthened and widened Panzer II chassis.

15cm slG 33 auf Fahrgestell Panzerkampfwagen II (Sf)

The chassis of the Panzer II lent itself well to the mounting of artillery pieces, converting the vehicle to the role of self-propelled gun. One of the first gun mount variants was the 15cm slG 33 auf Fahrgestell Panzerkampfwagen II (Sf), involving the mounting of a 15cm slG heavy gun on a turretless, modified Ausf B chassis. The open-topped superstructure was protected by 15mm of armour, the crew also being covered by the tall frontal gun shield. Only twelve units were built, in November and December 1941; these were assigned to the 707th and 708th heavy infantry artillery companies of the 90th Light Division in North Africa and remained active until the final battles in Tunisia in 1943.

7.62cm PaK 36(r) auf Fahrgestell Panzerkampfwagen II Ausf D/E (Marder II) (Sd.Kfz.132)

This vehicle, the first of the Marder (Marten) series, arose from a requirement, identified in the early stage of Operation Barbarossa for a mobile anti-tank gun capable of countering the Soviet T-34 and KV-1 tanks. This first version was armed with captured Soviet 7.62cm anti-tank weapons, which were in plentiful supply in 1941. Although it proved quite effective in its role, the vehicle was too tall and poorly protected, and after 201 examples had been built production switched to the 7.5cm PaK 40 auf Fahrgestell Panzerkampfwagen II, the second in the Marder series. This variant, which served on all fronts until the end of the war, was mounted on the Ausf F chassis and featured a much improved superstructure, giving a lower profile.

The Marder III Ausf M was a 7.5cm Pak 40/3 mounted on the chassis of a Czech-built Panzer 38(t) and was introduced from May 1943.

The Marder II anti-tank gun was mounted on a Panzer II Ausf F chassis.

A battery of Wespe self-propelled howitzers supporting German forces during the Battle of Kursk.

New production amounted to 576 units from June 1942 to June 1943, a further 75 tanks being converted after production had ceased. An unknown number of Panzer IIs were converted to carry the 50mm PaK 38 anti-tank gun, these being allocated the designation 5cm PaK 38 auf Fahrgestell Panzerkampfwagen II.

Leichte Feldhaubitze 18 auf Fahrgestell Panzerkampfwagen II Wespe

This conversion involved the mounting of a 105mm *leichte Feldhaubitze* (light field howitzer), the Wehrmacht's standard artillery piece, on the Panzer II chassis. Production amounted to 676 units between February 1943 and June 1944, a further 159 Wespe (Wasp) vehicles, minus the gun, being used as ammunition carriers with 90 rounds each to support the Wespe in operation.

Leichte Feldhaubitze 18/2 auf Fahrgestell Panzerkampfwagen II Wespe (Sd.Kfz. 124) on display at the Deutsches Panzermuseum Munster, Germany.

Panzer I & II in Detail

Crew

The Panzer I carried a two-man crew, the driver being positioned inside the chassis, using conventional steering levers to control the vehicle, while the commander was positioned inside the turret, where he also acted as the gunner. The two crewmen could communicate by means of a voice tube. The larger Panzer II had a crew of three, the driver sitting in the forward left hull with the gearbox on his right. The commander, seated in the turret, was responsible for aiming and firing the cannon and co-axial machine gun, while the loader/radio operator sat on the floor of the tank behind the driver, with the radio set on his left.

Armament

Production versions of the Panzer I were armed with two 7.9mm MG13 machine guns mounted in the turret, which was rotated by hand. Ammunition was stowed in five bins, containing various numbers of 25-round magazines. Most tank versions of the Panzer II were armed with the 20mm KwK 30 L/55 autocannon, although some later variants were fitted with the KwK 38 L/55. The autocannon was based on the 20mm FlaK 30 anti-aircraft gun, which had a rate of fire of 600 rounds per minute from ten-round magazines, which stored a total of 180 rounds. The Panzer II was also armed with a 7.92mm MG34 machine gun, mounted coaxially with the main gun and provided with 2,250 rounds of ammunition.

Powerplant

The initial production version of the Panzer I was powered by a 60hp Krupp M305 four-cylinder air-cooled petrol engine, but this ineffective powerplant was soon replaced by a water-cooled six-cylinder Maybach NL38TR engine, developing 100hp. All production versions of the Panzer II were fitted with a 138hp six-cylinder Maybach HL62 TRM petrol engine, giving a range of 120

miles (200km).

Armour

The initial production model of the Panzer I, the Ausführung A, was seriously under-armoured, which was hardly surprising as it was never intended for a combat role. Attempts to upgrade the vehicle's amour as a result of its experience during the Spanish Civil War served only to increase its weight, which in turn subjected its low-powered engine to unacceptable strain. It was not until the advent of the Panzer II, with its 100hp engine, that extra armour could be tolerated. The armour of the main production variant, the Panzer II Ausf C, was upgraded in 1940, the frontal armour of the turret being reinforced by steel sheets between 14.5mm and 20mm thick, while 20mm amour plates were added to hull front. The design of the hull's front section was also modified: over the bent 14.5mm armour plating protecting the crew two more plates were welded, joined to one another at a 70-degree angle. The upper plate had a thickness of 14.5mm, the lower 20mm. The gun mantlet was fitted with a protective lipped shield on the top and bottom that prevented the joints of the mantlet and edges of the opening from being hit by shrapnel. The gap between the turret box and turret was protected by an armoured collar which was welded to the roof of the box. The driver/radio operator's hatch also received an armoured shield.

A Panzer I Ausf A preserved at the Deutsches Panzermuseum in Munster, Germany.

A Panzer I Ausf A.

Design

The Panzer I had a number of basic design flaws, starting with the suspension, which caused the vehicle to pitch at high speed, and engine overheating, which led to numerous breakdowns. Early variants of the Panzer II featured a leaf spring suspension, a simple type of spring taking the form of a slender arc-shaped length of spring steel of rectangular cross-section. In its most common configuration, the centre of the arc provided location for the axle, while loops at either end provided points for attachment to the vehicle chassis. The Panzer II Ausf D and E had a torsion bar suspension, in which a torsion bar acted as the main weight-bearing spring. One end of a long metal bar was attached firmly to the vehicle chassis, the opposite end terminating in a lever, the torsion key, mounted perpendicular to the bar, which was attached to a suspension arm, a spindle, or the axle. Vertical motion of the wheel caused the bar to twist around its axis and was resisted by the bar's torsion resistance. In practice, the system was found to reduce the tank's maximum off-road speed, so the Ausf F and G reverted to the leaf spring suspension.

Panzer I Ausf B, as operated by Panzer-Abteilung zur besonderen Verwendung 40 (PzAbtzbV.40), in Norway, April–May 1940.

Panzer I Ausf A as operated by 5th Panzer Division in Poland, 1939. Note the application of yellow colour (or mud) to tone down white identification crosses, which proved to be an excellent target for Polish gunners.

Panzer I Ausf A as operated by the Legion Condor in Spain, 1936.

Panzer I Ausf A, some of 25 Ausf As originally assigned to the 5th Panzer Regiment of the 5th Leichte Panzer Division. They were assigned to the 8th Company, where they supported Panzer IV Ds and Es in the early phase of the 1941 campaign in Libya.

Panzer I Ausf B. A few of Panzer Is remained in operational service with different regiments long enough to see combat during Operation Barbarossa – the German invasion of the Soviet Union – in 1941. This example was last photographed during the fighting on approach to Moscow, in November that year. Sole insignia consisted of the divisional marking applied on the side of the turret.

Panzer I Ausf A, as assigned to the regiments: Stab of the 5th Panzer Division and 5th Leichte Panzer Division, in Africa March-May 1941.

The Kleiner Panzerbefehlswagen usually served as vehicles assigned to battalion commanders of Panzer regiments. This example was the third Befehlspanzer assigned to the commander of the 1st Battalion, 5th Panzer Regiment during the fighting in Libya. It was knocked out during the Battle of Sidi Rezegh on 23 November 1941. It features the well-known ‘palm’ of the Afrika Korps, but still retains the insignia of the 3rd Panzer Division, to which the 5th Panzer Regiment originally belonged.

The early Kleiner Panzerbefehlswagen originally had a relatively simple superstructure without an additional turret for the commander. This example is depicted as while serving with an unknown unit in Poland, 1939.

Panzerjäger I or Jagdpanzer I (4,7cm Pak), also 4,7cm Pak (t) aufGefWgI, Ausf B. This was one of 18 vehicles of this variant, equipped with modified superstructure with better protection for the crew, assigned to the Panzerjäger Abteilung (Sfl.) 605, and deployed with 5th Leichte Division in Libya in 1941. All arrived in Africa wearing panzergrau overall, and most received disruptive camouflage patterns made from mud early on.

Panzerjäger I, probably one of 18 operated by Panzerjäger Abteilung 521 in 1940 and 1941. Inscription on the superstructure (Mährisch-Ostrau) probably identifyies the part of Germany from where one of crew members came.

Panzer I Ausf F as operated by the 1st Panzer Division during the Kursk offensive, July 1943.

Panzer I C as operated by the LVIII Reserve Panzer Corps in Normandy, 1944.

The crew of a Panzerjäger I taking a break during the advance into France, 1940.

The self-propelled, 15cm heavy infantry gun (sIG 33) on a Panzer I chassis as seen in Greece in April 1941. Divisional signs and personal names of such vehicles were usually applied on the front superstructure.

Panzer II B assigned to the Headquarters Company of the 1st Battalion, 35th Panzer Regiment, 4th Panzer Division in Russia, 1941. The name Franz Lott was applied in memory of a crewman killed in action – probably in France in 1940.

Panzer II B of the Panzer Abteilung zur besonderen Verwendung 40 (PzAbtzbV.40) in Norway, April–May 1940.

Panzer II B of the 5th Panzer Division, as operated in Poland in 1939. Notable is the use of yellow colour to tone down the white cross.

Panzer II C. Through much of 1941 and 1942, the Regiments Arzt (Medical Officer) of the 5th Panzer Regiment had his own Panzer II C (later Panzer II F), which was mainly used for the evacuation of injured personnel from the battlefield. The vehicle received corresponding insignia on its turret, including identification of its operator, and the Caduceus, the traditional symbol of Hermes featuring two snakes winding around a staff. At least one such Panzer II C was among the first German tanks captured during the fighting for Tobruk.

Panzer II C. Starting in 1941, ever-increasing numbers of Panzer Is and IIs were taken out of line-service and rebuilt to carry out other tasks. This Panzer II Ausf C received an additional turret while serving as an artillery observation vehicle.

Panzer II Cs served in significant numbers in Africa, where they were primarily used for reconnaissance. This example was last photographed on the approach to Tobruk in May 1941, when all the tanks of the 5th Panzer Regiment that were still operational after the long advance over Cyrenaica were grouped within its 2nd Battalion. Correspondingly, the vehicle received the insignia identifying it as assigned to the Headquarters Company of that battalion, in addition to the original '05' left over from earlier times.

Panzer II D. In an attempt to conceal their identity, some of tanks operated by Headquarters companies of different Panzer regiments deployed for Operation Barbarossa received turret insignia identifying them as belonging to the 10th Company. This example was last photographed in summer 1941, in Russia.

Panzer II C. Some Panzer II Cs still served in their original configurations during the fighting in the Balkans and the invasion of the USSR in 1941. This example was assigned to 11th Panzer Division during that year.

Panzer II D. For Operation Barbarossa, most German tanks received large turret insignia applied in red and outlined in white. This example was assigned to the reconnaissance platoon of the Headquarters Company of the 3rd Battalion 35th Panzer Regiment 35, 7th Panzer Division.

Panzer II L. Another example of the Panzer II Ausf L operated in Normandy, 1944.

Panzer II L assigned to an unknown unit, Poland, 1944–1945.

Panzer II L. This ‘Luchs’ was assigned to the 1st Company, 9th Panzer Aufklärungs Abteilung in Normandy, in 1944.

Panzer I Ausf B

OPERATION BARBAROSSA 1941

1/35 Scale

Guy Wilde

This kit is the 1980’s Italeri release. It represents a vehicle from the 1st Panzer Division during Operation Barbarossa, although white crosses were not in general use at that time. It was built out of the box except for the muffler heat shield.

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Panzer I Ausf B

DESERT SURVIVOR: AFRICA LATE 1942 TO EARLY 1943

1/35 Scale

Brian Bocchino

This is the Dragon kit 6207 DAK Panzer I Ausf B. I wanted a fairly fast build and chose this Panzer I for that reason. I also wanted something small with a closed top. I would say the most difficult part was the tracks, they are so small it was like building individual72nd scale tracks. These were not magic tracks, but had to be cut off the sprue and were very delicate. As the desert can take a harsh toll, I beat this one up heavily.

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Panzer I Ausf C
EASTERN FRONT 1943
1/35 Scale
Robert Bednarcik

This is the HobbyBoss Panzer I Ausf C in 35th scale. It was built out of the box just with some minor modifications. It represent a vehicle from the 1st Panzer Division, Eastern Front, 1943.

Panzer II Ausf A
FRANCE 1940
1/35 Scale
Philipp Gross

It’s the Tamiya kit, painted with Tamiya colours. I’ve added metal gun barrels and an antenna by RB Model, the commander is made by Dragon, with some lead wire added for the headphone cables. The base was made from cork and plywood, with a Miniart manhole cover added.

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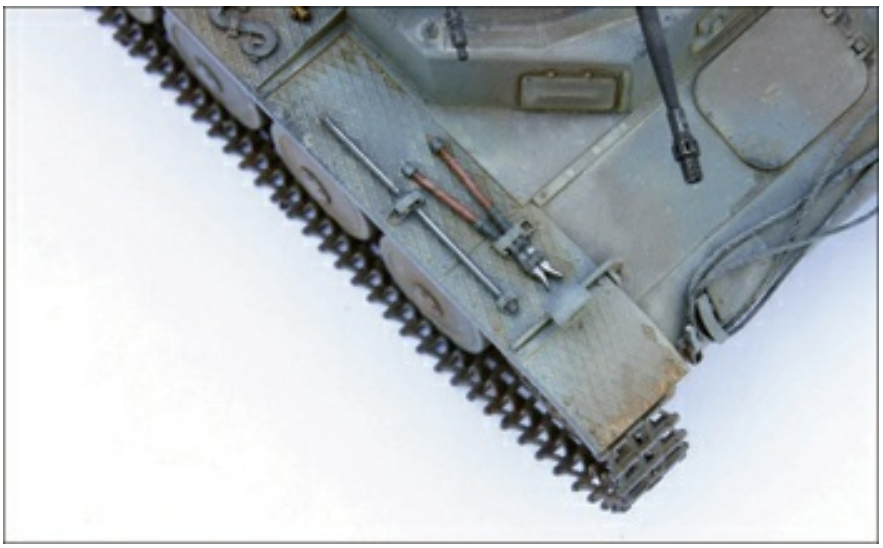
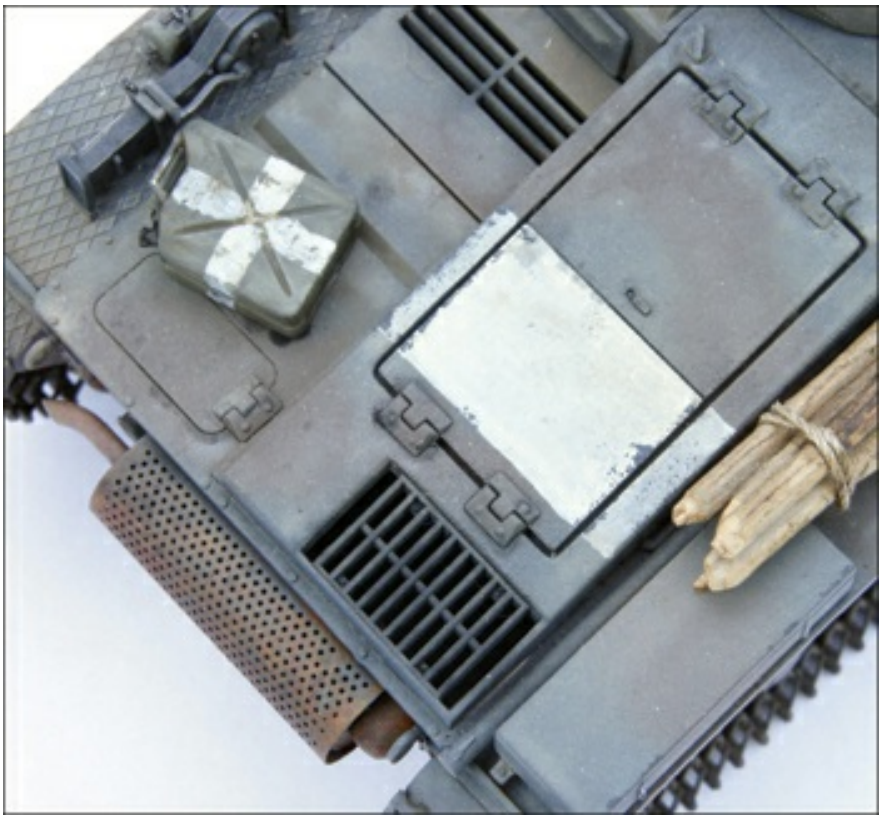
Panzer II Ausf C
POLAND
1/35 Scale
Bill Stewart

Base Kit: Tamiya 35299; Aftermarket Parts: LionMarc 2cm Kwk 30 brass barrel and an RB Model MG34; Figure: Tamiya torso with a Hornet head.

This is the Tamiya Panzer II Polish Campaign kit that was released in 2009. The kit goes together extremely well as is to be expected with any Tamiya release. The tracks are link and length, making for well-detailed but rapid assembly of the running gear. I built the kit out of the box, but added a LionMarc brass barrel and an RB Model MG34. The model was finished with Tamiya acrylics in an early war camouflage employed during the Polish Campaign of a 2/3 dunkelgrau:1/3 dunkelbraun scheme. Details were painted using Vallejo acrylics and ModelMaster enamels. Weathering was accomplished with Windsor Newton oils, with built-up washes in raw umber, and light earth tones. To simulate built-up dried mud on the lower hull, I used MIG Europe Dust pigments fixed with Tamiya thinner. A graphite pencil was used to simulate bare metal highlights on edges and track cleats. The figure is a Hornet head attached to a Tamiya torso and painted in oils. This model won Gold at AMPS East, ArmorCon, a few years ago.





Panzer II Ausf D
POLAND
1/35 Scale
Bill Stewart

Base Kit: Bronco; Aftermarket Parts: LionMarc 2cm Kwk 30 brass barrel and an RB Model MG34, MV Lenses; Figure: Tamiya torso with a Hornet head.

This is Bronco Models Panzer II Ausf D built primarily out of the box. I added a LionMarc 2cm Kwk 30 brass barrel and an RB Model MG34 to enhance the level of detail in the armaments department. I added a set of MV Lenses for the headlamps, plus a tow cable from the spares box. The tank was painted using Tamiya acrylics in the Polish Campaign 2/3 dunkelgrau:1/3 dunkelbraun scheme. Details were painted with ModelMaster and Vallejo paints, and weathered with Windsor Newton oils. The tracks were airbrushed a dirty track mixture of black & red brown, followed by numerous washes of rust and dust tones. Final detailing included highlighting wear with a #2 pencil. The commander figure is a Tamiya torso with a Hornet head. I added branches crafted with dried roots and Noch foliage. This model won Gold at AMPS East, ArmorCon, some years back.

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Panzer II Ausf F
AFRIKA KORPS
1/35 Scale
Bill Stewart

Base Kit: Tamiya 35009 (1971); Aftermarket Parts: Modelkasten tracks, LionMarc 2cm Kwk 30 brass barrel, Griffon Model photoetch tool clasps.

This is the ancient Tamiya Panzer II Ausf F kit originally released in 1971. It's a kit that is a perfect first model tank for beginners, but it's also a quick and fun afternoon build. The proportions are right, but the detailing is over-simplified. The greatest shortcoming of this kit is the poor tracks and armaments. I used a set of Modelkasten Tracks and brass barrels to help improve the appearance of the build. The intricate detailing and delicate molding of the aftermarket tracks adds a level of visual sophistication to what is a very basic model. With the exception of the LionMarc barrels, the rest of the kit was built straight out of the box. I did, however, add brass detailing of the tool clasps with levers from a Griffon photoetch set. The model was finished in Tamiya acrylics with details painted in Vallejo acrylics. I basecoated the tank in a lightened panzergrau, followed by a faded desert yellow scheme taking care to leave areas around the locations of the decals grey to simulate a tank that had arrived in North Africa in a factory panzergrau scheme, but was repainted in the field. I highlighted several small details like raised bolt heads and visors with a brighter more vibrant desert yellow. As I wanted to depict a vehicle that had been field painted then subjected to the harsh conditions of the North African desert, I simulated wear and tear on the yellow paint by dabbing grey with a scrap of fine sponge around raised surfaces and places where the crew would have worn off the paint. General weathering was accomplished with washes of Windsor Newton oils built up in layers to create the feel of a dirty and dusty desert warrior. The tracks were painted in a dirty track mix of black and red brown. I applied numerous washes of oils in varying rust tones to create additional visual interest. Final detailing was done with a #2 pencil to highlight areas

where the paint would have been worn to bare steel.

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Panzer II Ausf J
EASTERN FRONT
1/35 Scale
Bill Stewart

Base Kit: Alan; Aftermarket Parts: Griffon Model 2cm Kwk 38 aluminum/brass barrel, MV lenses.

This is the Panzer II Ausf J kit from Alan. The kit is a rather crude, older-feeling model of a unique version of the Panzer II, that of a heavily armored reconnaissance tank. By adding a few key details, such as the signature 2cm KwK 38 cannon with the flared flash suppressor from Griffon Model and a set of MV lenses for the headlamps, a rather simple model can be made to look like a more sophisticated build. The model was airbrushed in Tamiya acrylics using a combination of a custom mix dunkelgelb followed by a pattern oversprayed in olivgrun. Details were painted with ModelMaster enamels, followed by various washes of dirt, dust, and rust tones using Windsor Newton oils. Chipping of the yellow paint was accomplished by carefully dabbing grey paint on edges and wear surfaces with a fine foam sponge. The tracks were painted in a dirty track base color of brown-black, followed by darker and dirtier oil washes to add depth, and then highlighted with a graphite pencil to simulate bright, worn steel. This model won Gold and the Rolls Royce Award at the 2017 AMPS East or ArmorCon.

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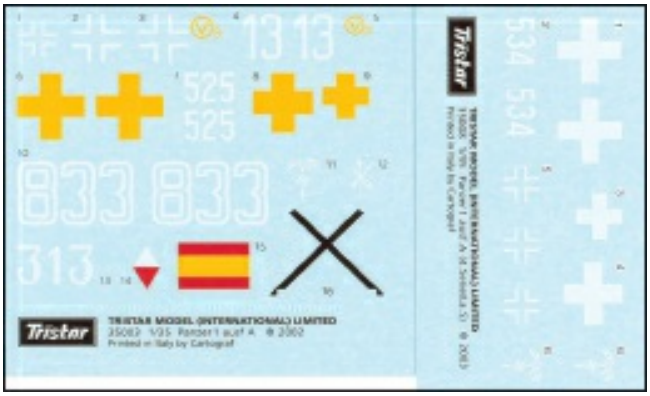
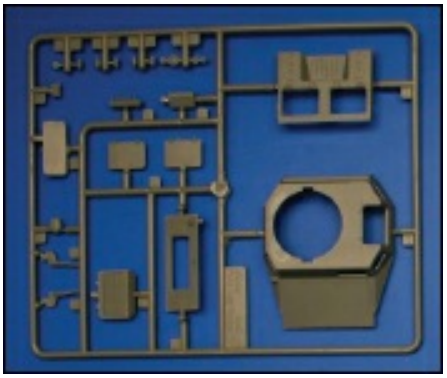
Modellers wishing to tackle the Panzer I and II are faced with a wide choice of scales, from the 1/35th models offered by such firms as Tamiya, Dragon and Tristar to the diminutive 1/100th scale models produced by Zvezda.

The **Tristar** 1/35 Panzer I kit gives the modeller a choice of building either an early or late variant and includes the fighting compartment, engine and transmission. Instructions consist of two separate sections containing a brief history of the vehicle, sprue layout, paint chart and colour/marking drawings, as well as thirteen assembly steps. The individual steps are clear and concise, with part placement well marked. The decals give several options, ranging from the Spanish Civil War to North Afrika. The engine, transmission and fighting compartment are very well detailed and slide mould technology is evident in such parts as the beautifully moulded engine block. The engine itself consists of over 20 parts and begs for the hatch to be left in the open position.





Dragon's rival Panzer I product features an Ausf A and includes internal bulkheads, controls, batteries, foot pedals, a brass radio mount, copious amounts of magazines for the machine guns, two breech ends with fittings for the guns, very complex but complete clear view ports and frames, and all hatches and ports on the upper side of the vehicle are optional position bits. Finishing instructions and decals are provided for three different tanks: HQS 6th Panzer Division, Western Front 1939-1940 (grey); 3./Pz.Abt.z.b.V.40,

Norway 1940 (grey); and 1st Abt 15th Panzer Regiment, 5th Panzer Division, Sandomierz, Poland 1939 (grey). In view of their size, both kits feature a tremendous amount of detail.

1:35 '39-'45 SERIES

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6356

First released in 1997, **Alan Hobbies'** 1/35 scale Panzer I Ausf F has been generally well received, with particular praise reserved for the track links, but most modellers agree that there is some room for improvement. The hull components are individual plates which have to be joined together, and great care needs to be taken in lining them up, otherwise gaps will result. The side hatches can be made to open, but most modellers elect to leave them closed, as there is no interior.

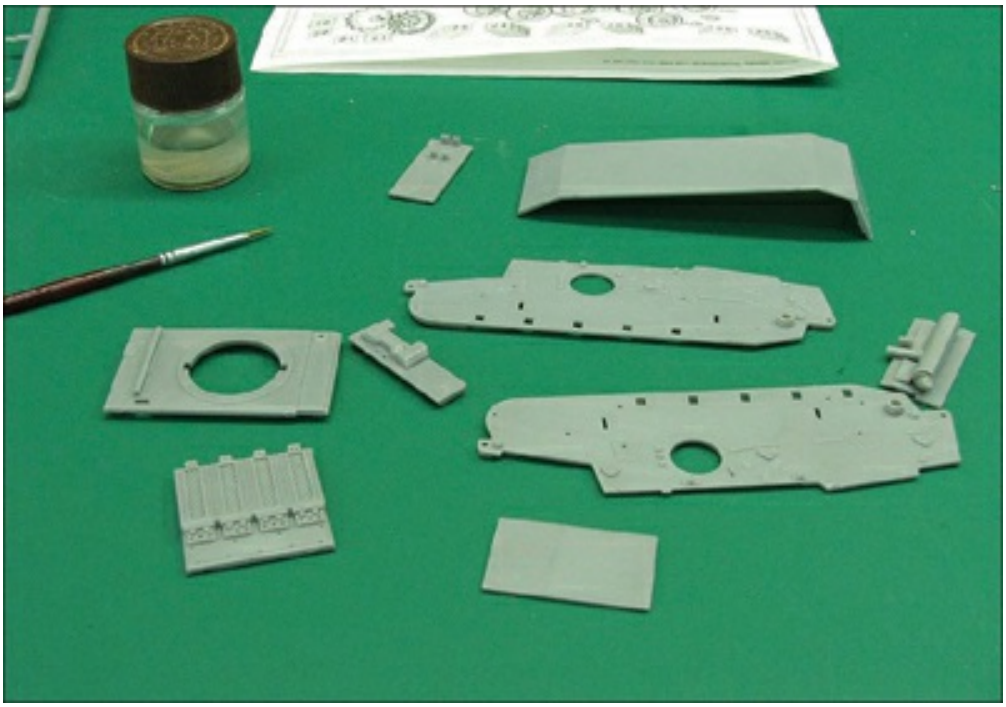
Building the turret is fairly simple, but as one modeller comments, "there are a few things that need to be done. First of all is the join between the gun

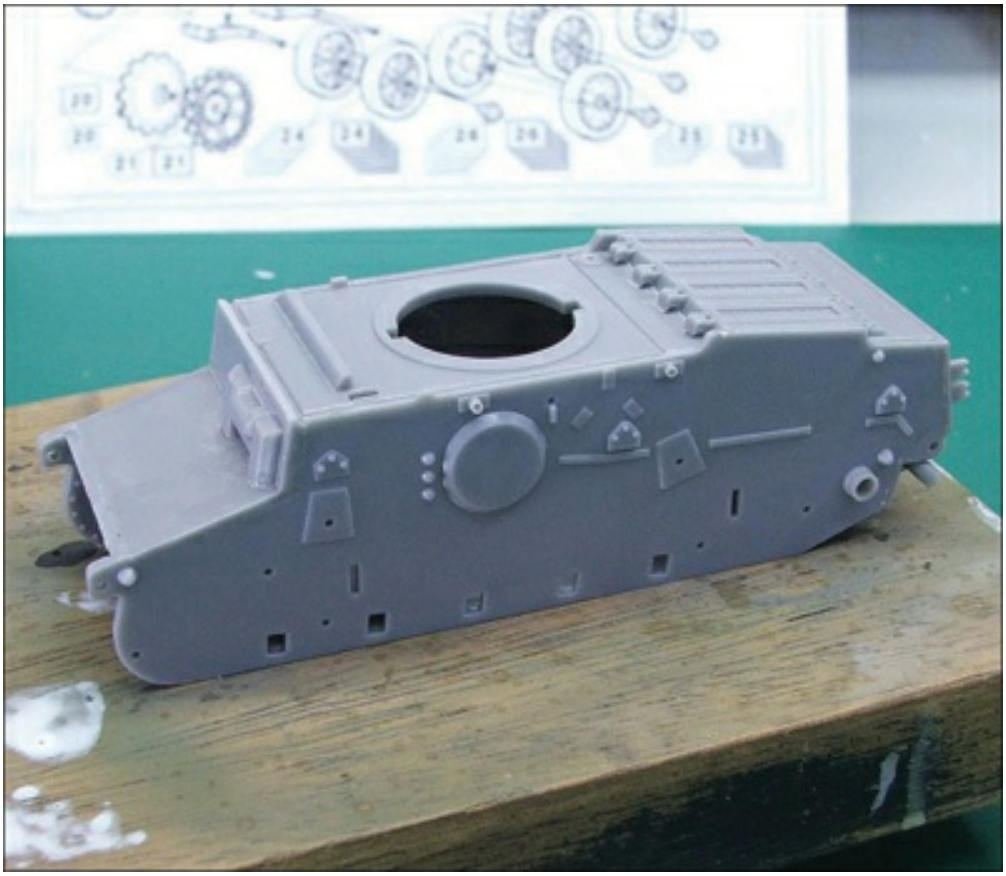
mantlet and the turret. The join isn't good and will need to be filled and sanded. I replaced the bolts around the turret edges with Grandt line rivets (set No 153). All weld seams were enhanced with the Pyro again. The lifting rings on the turret were replaced with brass wire, bent to shape. The turret hatch has some internal detail but it's a little basic. As I was going to have the hatch open, I sanded off the existing detail and replaced the locking lever with plastic strip, lead foil bracket and an etched brass handle taken from the Eduard PzKpfw III set. I also added a head pad carved from plasti-card. The MG-34 barrels were drilled out and added. Two bolts were also added to the L-shaped brackets that restrain the hatch when open.

"I found this an enjoyable kit to make and you can still build a nice model from what's in the box but with a little more work it can become a very good model. I would recommend it to anyone who would like to do something a bit different." (Chris Leeman, 1998).

Alan Hobbies is a Russian company, and is well represented by UK retailers.

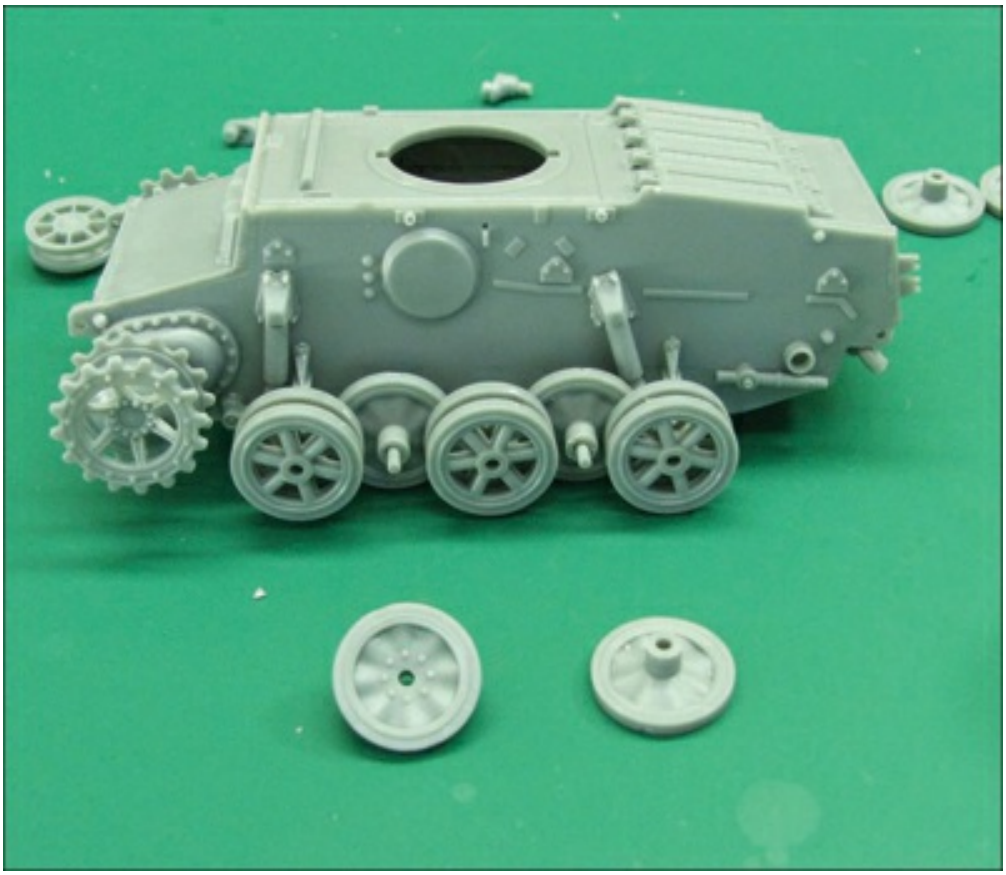
(All images courtesy of Marcos Serra.)

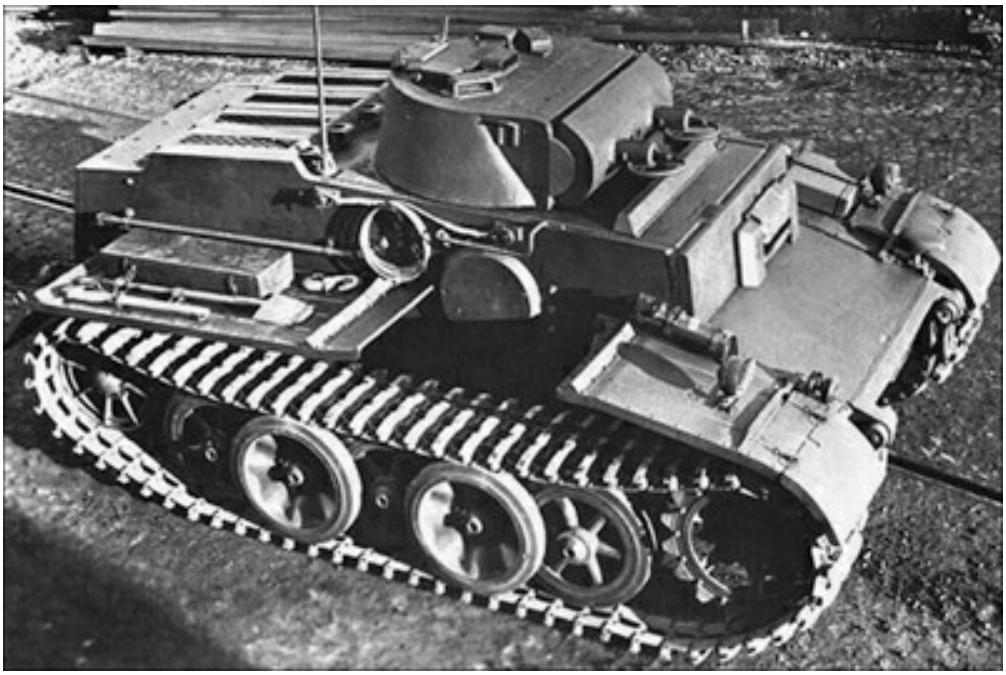


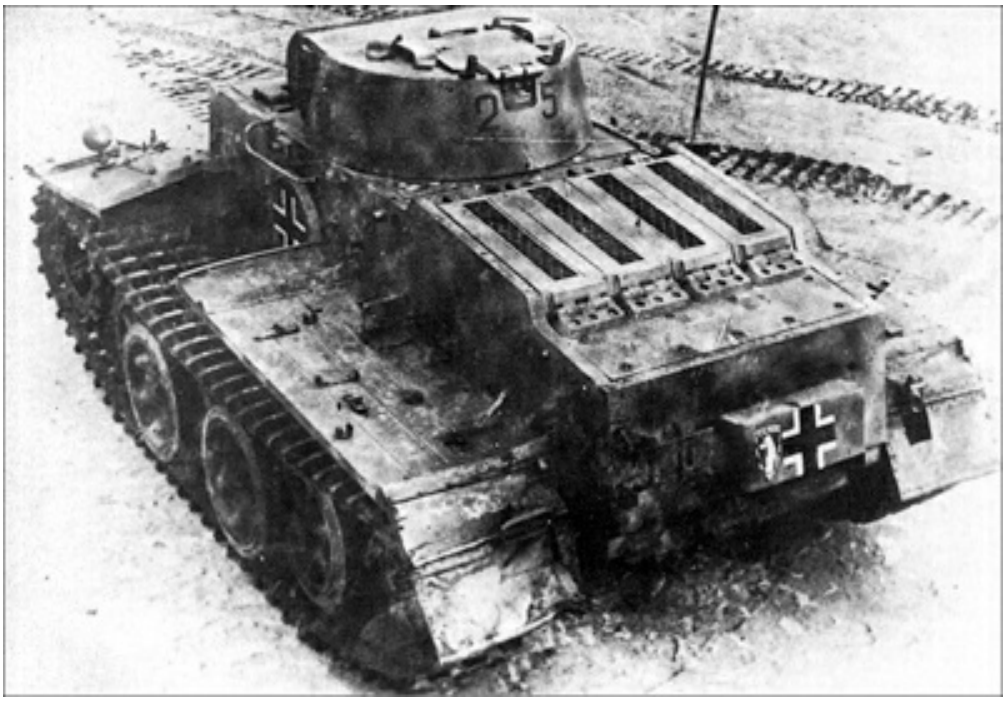


alan
PANZER I Ausf.F
СБОРНАЯ МОДЕЛЬ — КОПИЯ ТАНКА
ДЛЯ КОЛЛЕКЦИОНЕРОВ
1/35 MILITARY MINIATURE SERIES NO 007
READY TO ASSEMBLE PRECISION MODEL KIT

alan







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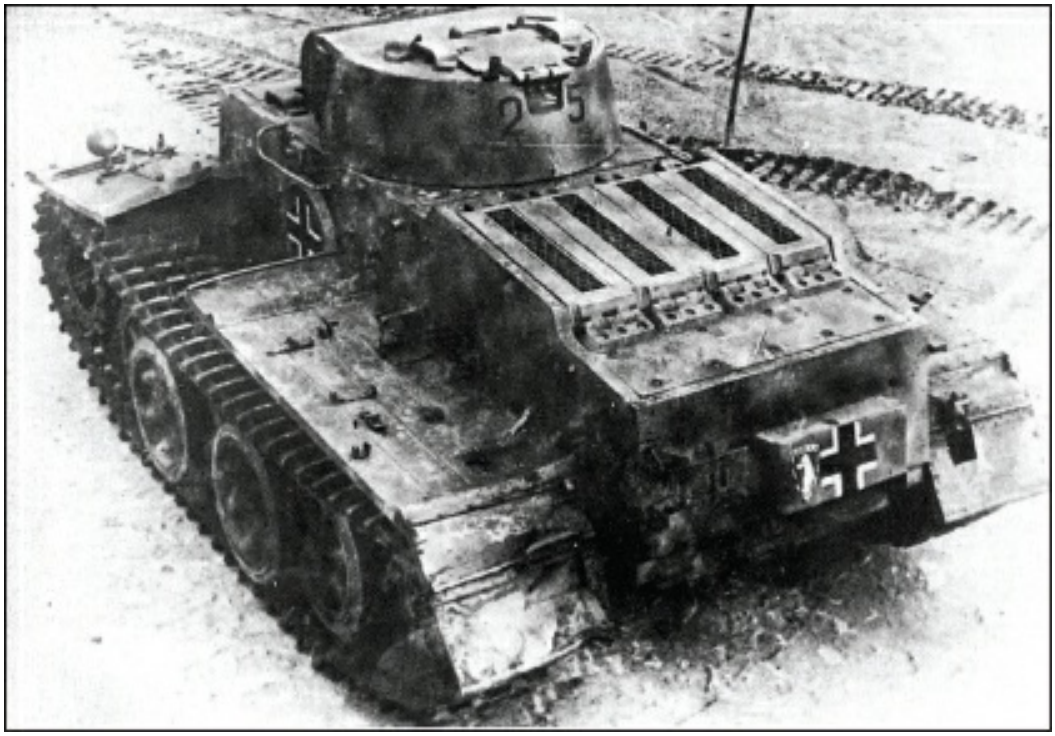
The Panzer II Ausf F is also available in 1/72 scale, notably from **ACE** plastic models, who also offer the Wespe and Marder SP gun variants, as well as the reconnaissance and transport conversions. Based in the Ukraine, ACE produces injection plastic armour kits which are manufactured using the Short Run Technology procedure (in which the firm can increase or decrease production runs depending on cost) and come complete with decals. With Short Run Technology there is some risk that not all parts are sharply casted.

Sometimes there will be some flash or sinkholes etc. As a result some parts may not fit together smoothly and tightly. Ace advises that only basic modelling skills are required, but some degree of modelling experience is desirable to produce a satisfactory result. Ace has been producing 1/72 scale models of the Panzer II Ausf F since 1974, the latest rebox was released in 2012.



Light tank PzKpfw II Sd Kfz.121 Ausf.F
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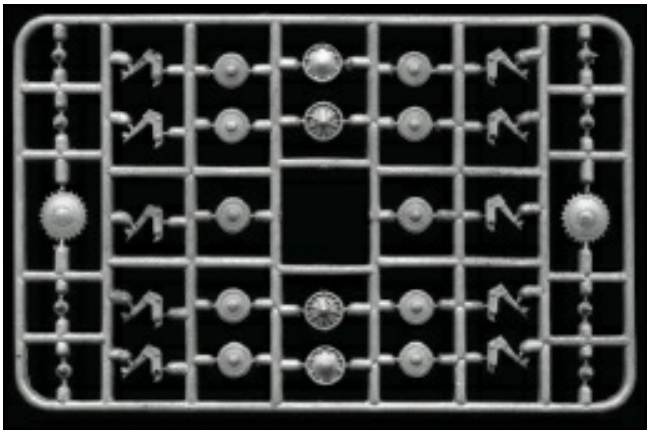
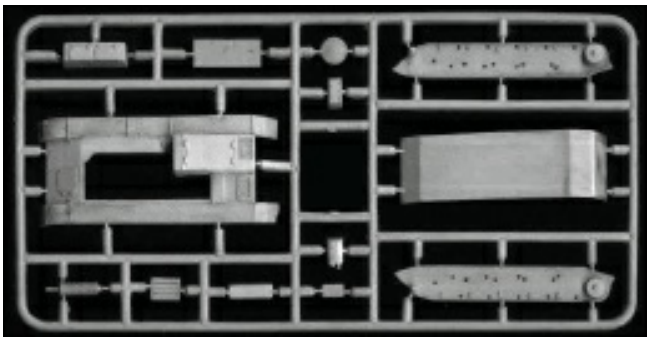
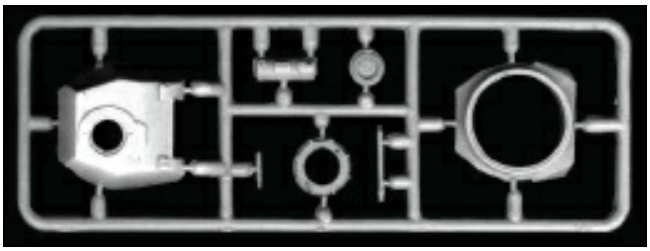
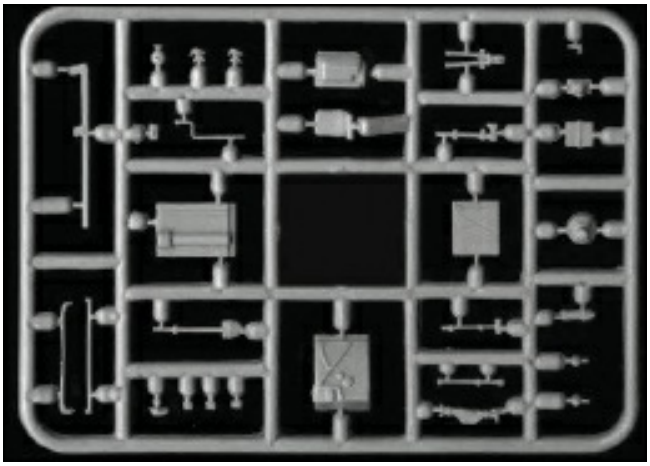
SCALE PLASTIC MODEL KIT WITH PHOTO-ETCHED TRACKS









One reviewer had this to say about **Tamiya's** 1/35 Panzer II:

"This kit must be nearly 40 years old now, it has always been around as far as I'm concerned and I've built it twice. It falls short when it comes to details compared with more modern kits, not as much as a few other kits of the same period though, but it still looks decent, and what it lacks in detail it makes up for in easy assembly and good old fashioned fun. The fit is as good as any modern kit, the decals are of good quality, allthough I can't vouch for their authenticity. And you get five figures included in the kit, a bit substandard perhaps, but nothing a bit of inspired brushwork can fix. Take it for what it is, indulge yourself in a bit of nostalgia with this classic kit, and enjoy it!

"I loved making this little light tank, it's smaller than I thought it was going to be and tiny next to the Panzer IV chassis but apparently the correct scale… This is perfect if you are just getting into the hobby and don't want to spend too much while you practice your skills, or if, like me, you enjoy the painting more than the actual construction as this thing can be thrown together in a single afternoon. I didn't bother with the figures as they are too fiddly for me and I decided to switch the colour scheme to a Western Front model and overall I'm very happy with the results."

Zvezda's diminutive 1/100 scale Panzer II Ausf F is a snap-together kit that requires no glue. The parts are well moulded and fit together easily, building up to a complete tank in about five minutes. It is intended primarily for use in wargaming scenarios, but is a useful first step for the younger modeller.

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45°

Hobby Master has produced several Panzer II kits in their 1/72 Ground Power Series, five representing the Ausf C variant and one the Ausf F. The

Ausf C models can be assembled and finished to show the light tanks assigned to the 35th Panzer Regiment of the 4th Panzer Division engaged in the Polish Campaign of September 1939; the 6th Panzer Division in France, 1940; the 8th Panzer Regiment of the 15th Panzer Division in Libya, 1941; a Panzer II of an unknown unit in the Caucasus in the winter of 1941; and an example belonging to the 31st Panzer Regiment of the 5th Panzer Division, Eastern Front 1941. The Panzer II Ausf F represents a vehicle of the 5/1 Panzer Regiment of the 1st Panzer Grenadier Division, Kharkov, 1943.

(Images courtesy of Hobby Master and show the 1941 Libyan and 1941 Caucasus types.)

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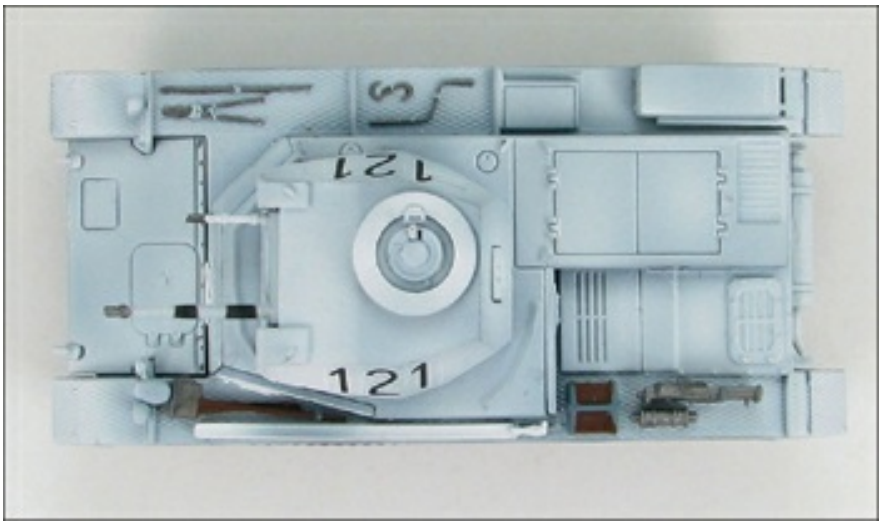
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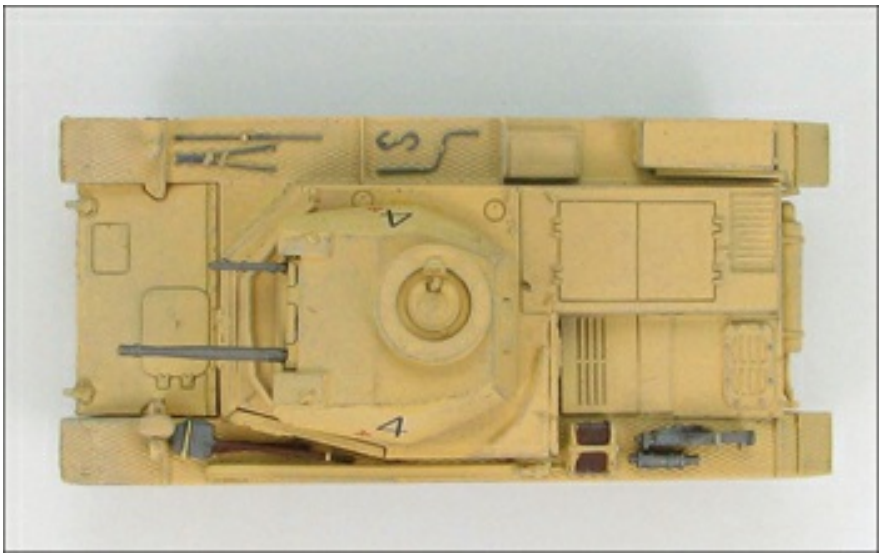
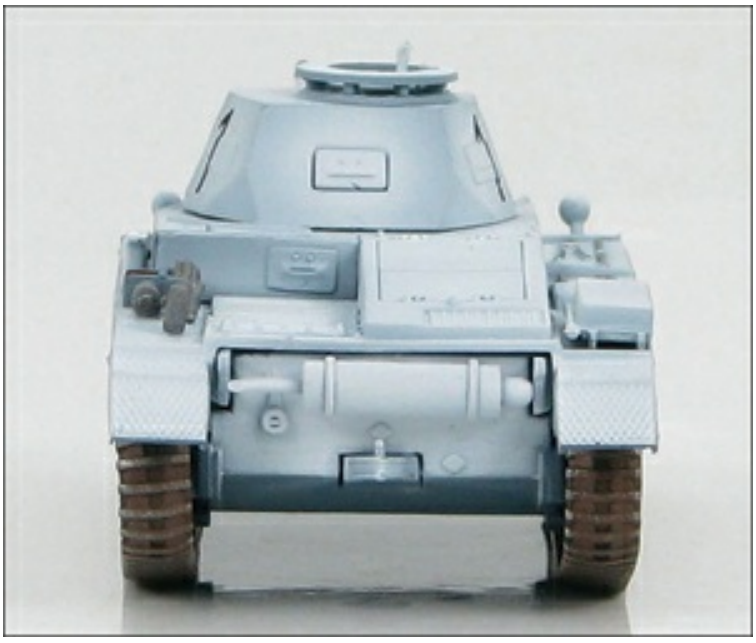




Panzer I & II in Combat

The Spanish Civil War

German involvement in the Spanish Civil War began very soon after the outbreak of hostilities. On 26 July 1936 the Spanish Nationalist commander, General Franco, sent emissaries to Adolf Hitler, who promised support for the Nationalist cause. Similarly, Josef Stalin threw the weight of the Soviet Union behind the left-wing Spanish Republican government. While Germany quickly provided Franco with aircraft, the Russians were the first to supply tanks, fifty Soviet T-26s arriving in Spain on 15 October. Germany's response was to ship forty-one Panzer I Ausf A vehicles to Spain a few days later. This first shipment was followed by four batches of Panzer I Ausf B tanks, raising the total number to 122. The first shipment of Panzer I tanks came under the command of Lieutenant Colonel Wilhelm Ritter von Thoma and formed the armoured echelon of the Condor Legion, raised in Germany to support the Nationalist war effort. The Panzer Is went into action for the first time on 30 October and experienced problems when they were engaged by Republican BA-10 armoured cars near the town of Torrejon de Velasco, the BA-10's 45mm gun proving effective against the Panzer I's armour at ranges of up to 500m (550yd). Although the Panzer I's 7.92mm armour-piercing ammunition could knock out both the BA-10 and T-26 in close combat (150m/165yd), the Republican tank crews soon learned to engage the Panzer I outside the effective range of the German tank's machine guns. Petrol bombs, later known as Molotov cocktails, were first used in Spain by the Nationalists against T-26 tanks.

The Sino-Japanese War

In 1937, the Nationalist Chinese government purchased ten Panzerkampfwagen I Ausf A light tanks from Germany. These were assigned to the 3rd Tank Battalion in Nanking and were either destroyed or captured by Japanese forces during subsequent fighting. German support for the

Nationalists was withdrawn in 1938, the Soviet Union becoming the main provider of armoured fighting vehicles for the Chinese army until 1941.

The Campaign in Poland, September 1939

The key to the success of the German invasion of Poland in September 1939 was surprise, in the form of a series of powerful attacks that would yield rapid results, and this envisaged the use of armour on an unprecedented scale. Two army groups – Army Group South, consisting of the Eighth, Tenth and Fourteenth armies under Colonel-General Gerd von Rundstedt, and Army Group North, comprising the Third and Fourth armies under Colonel-General Fedor von Bock – were formed to carry out the operation.

The effect of a Molotov cocktail on a tank – in this case a Panzer II.

The principal Japanese tank encountered by the Panzer I in Manchuria was the Type 89.

On 1 September 1939, the day the invasion (code-named Fall Weiss) was launched, the seven assigned Panzer divisions had a total of 2,700 tanks, but of these only 310 were Panzer III and IV medium tanks. A further 350 were Czech-built Panzer Pz38(t) vehicles, seized when the Germans overran Czechoslovakia earlier that year; the rest were Panzer Is and IIs.

Assembling the necessary forces was a stupendous task, made more difficult by Hitler's insistence that the mobilization and advance to the frontier had to be undertaken in secrecy. To camouflage the massive movement of troops and equipment, eight infantry divisions were set to work, from June 1939 onwards, in building an 'East Wall' along certain sectors of the frontier, ostensibly for defensive purposes, behind which the German forces could assemble undetected. To strengthen the forces in East Prussia, certain units – including the 4th Panzer Brigade – were openly transported by sea on the pretext of taking part in a big parade at the Tannenberg Memorial before participating in manoeuvres. The 'manoeuvres', when they came, would involve the full-scale invasion of Poland.

The TK-3 (TKS) tankette formed the bulk of the Polish armoured forces at the outbreak of war. Some were armed with a 20mm cannon.

A TK-3 preserved as a museum piece. (Polish Defence Ministry)

The Germans used a variety of light tanks in support of the invasion of Poland, including captured French vehicles such as the Hotchkiss H-39.

During the early stages of the five-week Polish campaign, stories emerged of Polish cavalry charging enemy tanks. Originally dismissed as propaganda or fanciful press tales, they were actually based on sound fact, but it had nothing to do with reckless bravery or foolhardiness. Polish cavalry squadrons were equipped with the highly effective Wz.35 anti-tank rifle, which had been developed in great secrecy from the mid-1930s. A bolt-action weapon based on the German Mauser 98, it fired a 7.92mm round with a muzzle velocity of over 1,000 metres per second. The bullet was not designed to penetrate a tank's armour, but to cause spalling on the interior of the armour plate, ejecting a fragment of about 20mm diameter which would then ricochet around the interior of the vehicle, with deadly effect. The weapon could fire 300 rounds before the barrel needed to be changed. Its effective range against the Panzer I and II was 100 metres, which meant that a cavalryman had to close to within that distance before the rifle could be effectively used. The tactic was therefore to approach at the gallop – in effect, to charge – then dismount and engage the target.

The Wz.35, which was also operated by Polish two-man infantry teams, accounted for many of the 320 Panzer Is lost during the campaign. The German armoured forces also lost 259 Panzer IIs, forty Panzer IIIs, seventy-six Panzer IVs and seventy-seven Panzer 35(t)s before fighting ended on 7 October. Many German tank were repaired and returned to service, so that

only eighty-three Panzer IIs were total write-offs.

The most common tank in service with the Polish Army in September 1939 was the TK-3 tankette (also known as the TKS), a version of the British Carden-Loyd Mk VI. About 300 TK-3s were produced by the PZI (National Engineering Works) at Ursus, near Warsaw. The tankettes formed the main body of the Polish Army's armoured force at the outbreak of the Second World War, and although they were no match for the German armour of the time they were ideal for reconnaissance and infantry support, their small size and low profile making them difficult targets. The TK-3s suffered heavy losses during the German invasion. About twenty-four were fitted with a 20mm cannon just before the outbreak of hostilities, and these were much better placed to engage the lighter types of German armoured vehicle than those armed with a single machine gun.

Poland's only viable light tank, the 7TP (a development of the British six-ton Vickers Mk E) had a Bofors 37mm main gun which was effective against all German tanks engaged in the Polish campaign, but only 150 were deployed and many fell victim to air attack.

Polish cavalry advancing through the town of Sochaczev. The cavalrymen at the centre of this image are carrying anti-tank rifles.

Poland’s 7TP was a viable light tank, but it was heavily outnumbered.

An anti-tank rifle team (in this case a Finnish one) in action.

Prior to the outbreak of the Second World War most of the twin turret 7TP tanks were converted to single turret versions and only 24 twin-turret types remained in Polish service (as opposed to roughly 108 of the other type).

Many 7TP tanks, like this one, fell victim to air attack.

Panzer I light tanks, marked with white crosses for identification, advancing into Poland.

A mixed column of Panzer Is and IIs advancing through the Polish countryside.

A Panzer I command tank in Poland.

A column of Panzer IIs advancing through a Polish town.

The battle for Poland was by no means all one-sided, as this image of destroyed Panzer IIs testifies.

Invasion of Norway

On 8 March 1940 the Germans formed a special-duty armoured battalion designated 40th Panzer Battalion at Putloss in Schleswig-Holstein, its task to support infantry units engaged in the forthcoming invasion of Norway and Denmark. The battalion comprised an HQ section and three companies, each with three platoons, drawn from the 3rd, 4th and 5th Panzer divisions. By 9 April the total strength of the 40th Panzer Battalion was forty-two Panzer Is, twenty-one Panzer IIs and six Panzer I command tanks. Most of the Panzer Is were Ausf A models, while the Panzer IIs were primarily the Ausf c.

While the 1st and 2nd companies were earmarked to support the German forces occupying Denmark, the 3rd Company embarked on two transport vessels, the *Urundi* and *Antares H*, on 9 April. The latter vessel carried the bulk of the tanks, fifteen in all, with two others on the *Urundi*. On 10 April, *Antares H* was torpedoed and sunk off the Norwegian coast by the British submarine HMS *Sunfish*, with the loss of all fifteen tanks. Only the two vehicles aboard the *Urundi*, a Panzer I and II, were offloaded. On 24 April, the German forces in Norway were reinforced by the two tank companies from Denmark. Three heavy tanks (Neubaufahrzeug Panzerkampfwagen VI) were also assigned to it. The unit saw action in central Norway, supporting troops of the 196th Infantry Division operating in the area of Lake Mjoesa and Randsfjord, its main opponent being the French component of the Allied Expeditionary Force. At the end of the Norwegian campaign 40th Panzer Battalion was based in Oslo until the winter of 1941–1942, when it redeployed to Finland and was subsequently incorporated into the 25th Panzer Division.

The Battle of France

Despite its obsolescence, the Panzer I played a major part in the invasion of France in May 1940. Of the 2,582 tanks available at the start of the campaign, 554 were Panzer Is, while the Panzer II was numerically the most important, 920 being deployed. Also included in the order of battle were 207 Czech-built Panzer 38(t) and 118 Panzer 35(t) light tanks. The so-called ‘breakthrough’ medium tanks, the Panzer III and IV, accounted for 629 of the total.

Like their French counterparts the German armoured divisions each had an

armoured brigade (*Panzer-Brigade*) with two tank regiments (*Panzer-Regimenter*). The latter were divided into two tank battalions (*panzer-Abteilungen*); each tank battalion had, apart from a staff company, two light companies of nineteen battle tanks, in theory mainly equipped with the Panzer III, and a medium company of fifteen battle tanks using the Panzer IV. Due to a shortage of these types, the strength was actually made up with the Panzer II, and to a lesser extent the Panzer I.

The exact numbers of each type on 10 May available to the German armoured divisions are known: 3rd Panzer Division had 314 battle tanks in its 3rd Panzer Brigade consisting of 5th and 6th Panzer regiments: 117 PzKpfw Is, 129 PzKpfw IIs, 42 PzKpfw IIIs and 26 PzKpfw IVs; 4th Panzer Division had 304 battle tanks in its 5th Panzer Brigade consisting of 35th and 36th Panzer regiments: 135 PzKpfw Is, 105 PzKpfw IIs, 40 PzKpfw IIIs and 24 PzKpfw IVs.

XVI Army Corps thus had a total of 618 tanks: 252 PzKpfw Is, 234 PzKpfw IIs, 82 PzKpfw IIIs and 50 PzKpfw IVs. Besides these battle tanks, 3rd Panzer Division had 27 Befehlspanzer tracked command vehicles with only machine-gun armament and 4th Panzer Division ten. Each division also had about 56 armoured cars. Most PzKpfw IIs of XVI Army Corps had not yet been up-armoured to the new 30mm standard and were thus vulnerable to even the French 37mm L/21 gun.

A Panzerbefehlswagen I command tank seen at Galasko, near Lvov. With Poland virtually

defeated, the white identification crosses have been deleted.

German panzergrenadiers in action in Norway, supported by a Panzer II.

A Panzer I and troops advancing past a Norwegian roadblock.

One of the three Neubaufahrzeug heavy tanks assigned to 40th Panzer Battalion during the Norwegian campaign.

The Czech-built Panzer 38(t) was widely used by the German armoured divisions in all the early campaigns of the Second World War.

A dense column of German tanks of all types pushing ahead into France, May 1940.

A Panzer II commander, a *Gefreiter* (corporal), checks his map during the approach march through the Ardennes.

The campaign in France saw the combat debut of the first of the Panzer I derivatives, the Panzerjäger I, with ninety-nine vehicles deployed in four anti-tank battalions. The first, the 521st Anti-tank Battalion, was in action from the beginning with eighteen vehicles and the others – the 616th, 643rd and 670th – were deployed as soon as they had completed their training, each with a strength of twenty-seven vehicles. The Panzerjäger I's main function was to counter France's Char B heavy tank, which was impervious to the 3.7cm rounds of the PaK 36 anti-tank gun.

Both the Panzer I and II played a prominent part in the first days of the German offensive between 10 and 14 May, the lighter and more nimble tanks scouting ahead of the heavier medium tanks on the approach march through the Ardennes forest to the river Meuse. Following the German breakout on 14 May from the bridgeheads established on the west bank of the Meuse, the role of the light tanks was mainly reconnaissance, at the same time protecting the flanks of the seven Panzer divisions that now drove into northern France, Belgium and Holland. The light tanks also performed an invaluable infantry support task, especially when it involved troops left behind in the wake of the medium tanks' rapid advances. One German infantry NCO, Johannes Hamm, was in the thick of the fighting as the Germans advanced into Belgium, his unit supported by Panzer IIs and a few Panzer Is.

> On the 14th we went on the offensive for the first time. The enemy offered only weak resistance. We went forward together with our tanks. Ahead of us were French tanks and motorized infantry, apparently elite troops of the 1st French Armoured Division from Paris … The first Frenchmen we encountered were all badly wounded. We suffered only one slightly wounded, the result of a Belgian strafing attack. Ahead of us, duels were fought between German and French tanks. The French tanks were heavily armoured and slow; ours were faster, more manoeuvrable and better led.

Some of the fighting for possession of individual villages was savage, and on one occasion Hamm's company was saved only by the timely arrival of some Panzer II tanks.

We assembled in the village and occupied the abandoned French bunkers. Hardly had we done so when the French opened up a hellish artillery barrage. The CO was on the point of withdrawing the entire Company to its old positions when the Battalion Commander appeared and asked what was going on. He rallied the weary crowd. Three tanks came up, and in the late afternoon we renewed the attack. This time it was well organized, and untroubled by enemy artillery fire.

The tanks engaged the MG and infantry nests while we combed the houses and threw hand grenades inside. We pounced on some Moroccans, who gave themselves up. We became split up again as darkness fell and I found myself among a strange crowd with Corporal Marx. Number One Platoon had apparently got lost. We attached ourselves to the 3rd Battalion, and from there we were pointed in the right direction, until we eventually found the Company shortly after midnight. They had dug themselves in, expecting an enemy counter-attack. The 1st and 3rd Platoons were missing. We were all done in. The Frenchmen too, apparently, because they failed to attack. I slept in my foxhole. At first light we were relieved.

Between 10 and 20 May only forty-five Panzer IIs were lost in combat, mainly because the armoured spearheads of Panzer III and IV tanks bore the brunt of the action against allied armour, but in the next ten days Panzer II losses climbed more steeply as the light tanks became more engaged in reinforcing the main armoured dash to the Channel coast. During this period 150 Panzer IIs were lost, but so were eighty-four Panzer IIIs and sixty-three Panzer IVs.

While the German Army Group A advanced through the Belgian Ardennes, General Fedor von Bock’s Army Group B, spearheaded by the Sixth Army, launched an offensive towards the Gembloux Gap. Gembloux, which was unfortified, occupied a key position in the Belgian defensive line; the gap stretched for 30 kilometres (19 miles) across the Belgian plain. After attacking from Maastricht and overwhelming the Belgian defences at Liège, General Hoepner’s XVI Panzer Corps (3rd and 4th Panzer divisions) thrust directly towards the Gembloux gap, which was to be defended by the French

First Army with six elite divisions. The French operational plan called for the French Cavalry Corps under General Prioux and comprising the 2nd and 3rd light divisions, to push forward and form a screening line on the Tirlemont–Hannut-Huy axis with the object of blocking the German advance until the main body of the French First Army arrived in the Gembloux area and dug in.

A Panzer II on a low loader.

A Panzer II crew seeks some shade amid the undergrowth of a French wood.

France's Light Tanks

In the autumn of 1935, as part of a modernization programme initiated by the French Army Commander-in-Chief, General Maxime Weygand, several new armoured fighting vehicles were ordered into production. The first of these was the 12-ton Hotchkiss light tank, initially fitted with a 25mm and later a 37mm gun. Two hundred were ordered, together with 300 Renault R.35 infantry support tanks. The first production vehicles were delivered in September 1936, and by the outbreak of war in 1939 some 640 had come off the production line. From 1936 onward, the basic production model was joined by two upgraded variants, the H-38 and H-39, which had more powerful engines and thicker armour. Despite this, all the Hotchkiss light tanks suffered terrible

casualties during the Battle of France, but this was partly due to poor tactics, the French continuing to use their armour in small infantry support groups rather than massing it in large formations to take on the Panzers. Many Hotchkiss tanks were captured by the Germans and used in various capacities for the remainder of the war, while others, abandoned by Vichy French colonial forces, were used for some time by various Middle East armies. The other tank, the 10-ton Renault R.35, also armed with a 37mm main gun, equipped twenty-one battalions on 10 May 1940, each with 45 vehicles. Like the H.35, it suffered serious losses, and might have made a better showing in the Battle of France had it not been for poor battlefield tactics and training.

Panzer II light tanks awaiting delivery to front-line units.

Tanks of the 6th Panzer Division passing through Belgium, May 1940.

The Renault R.35 light tank was the equal of the Panzer II, but stood little chance against the heavier German armour.

Deployed with the two French divisions were 176 S-35 Somua tanks. Weighing 19.2 tons and armed with a 47mm gun, the three-man Somua was arguably the best tank in the world in 1940. The French divisions also contained 239 Hotchkiss H.35 light tanks and an unknown number of Renault R.35s, which outclassed the Panzer I and were equal or superior to the Panzer II. The German 3rd and 4th Panzer divisions respectively had 280 and 343 tanks, but of these only seventy-three were Panzer IIIs and fifty-two Panzer IVs. The rest were Panzer Is and Panzer IIs, 486 in all, with a sprinkling of Czech-built Panzer 35(t)s.

Against the Panzer III and IV, however, the French light tanks had little chance of survival. In one early encounter, on 12 May, the Panzer IIIs of XVI Panzer Corps entered the Belgian town of St Trond and pushed on towards Hannut, which was held by a battalion of the French 11th Dismounted Dragoons supported by a squadron of the 2nd Cuirassiers armed with Hotchkiss H.35 tanks. By nightfall the dragoon battalion had been wiped out and the Cuirassiers had lost half their tanks, the rest withdrawing under cover of darkness. In another encounter on the following day, a company of the 7th Tank Battalion lost eleven of its fifteen H.35s in a brief, onesided battle with the 3rd Panzer Division.

Nevertheless, on 12 May – the day on which Hoepner's Panzer Corps and

Prioux' Cavalry Corps clashed head-on – it was the French who gained the upper hand for a time. Losses among the Panzer Is, whose armour could be penetrated by every French weapon of 25mm calibre or more, were catastrophic; the Panzer IIs fared a little better, but their losses were heavy too. In fact, the bulk of the Panzer I and II losses sustained in May 1940 (142 and 194 respectively) occurred during this early phase of the battle; a further forty Panzer Is and forty-six Panzer IIs would be destroyed in June, bringing the respective totals to 182 and 240 by the time the Armistice brought an end to the fighting.

North Africa

Early in 1941 the Oberkommando der Wehrmacht (OKW) decided to send forces to North Africa in support of the Italian army, which had been severely mauled by the British Commonwealth Western Desert Force. The original intention was to send what was termed the Sperrverband Lybien (Libyan Blocking Unit) with thirty tanks, intended to reinforce the Italians and stop further British advances into Libya. This plan was soon altered and the commitment raised to two divisions, the 5th Light Division to be followed by the 15th Division, the whole force under the command of General Erwin Rommel.

A Somua S-35 tank, destroyed during the fighting in France.

The Hotchkiss H-35 suffered appalling losses in combat with the Panzers.

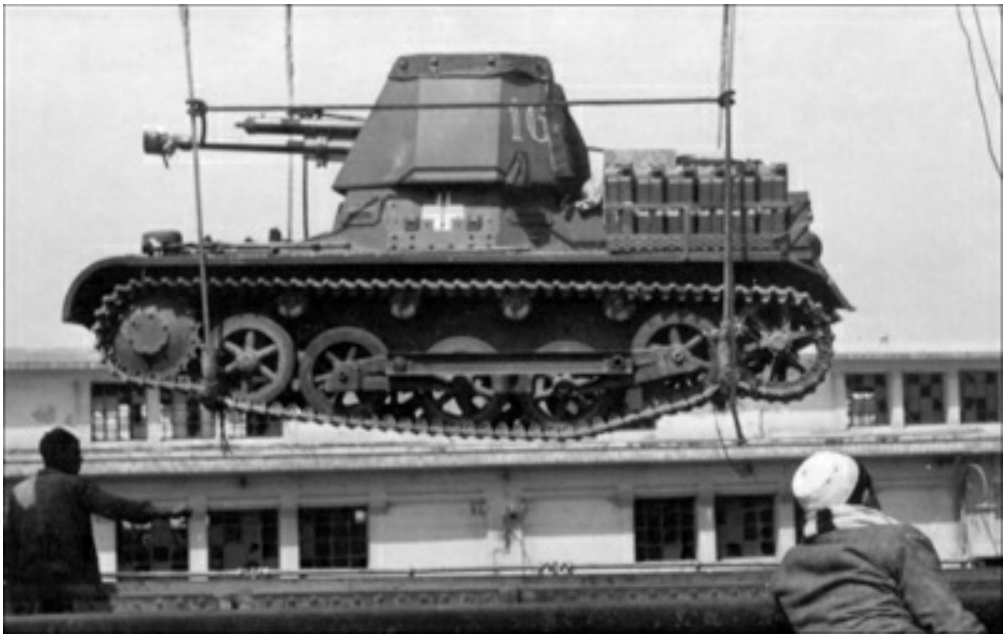
The initial force consisted of the 5th Panzer Regiment, which had been reassigned from the 3rd Panzer Division, at that time based in Germany. Other units stripped from 3rd Panzer and shipped to Africa were 3rd Panzer Brigade Staff, 3rd Reconnaissance Battalion (motorized), 39th Panzerjäger Battalion and 1st Division, 75th Artillery Regiment. When all these elements assembled in Africa they were redesignated 5th (Light) Division. The bulk of the force was shipped from Naples to Tripoli in three German freighters, the *Ankara*, *Arcturus* and *Alicante*, with an Italian naval escort. The vessels arrived in the Libyan port of Tripoli between 12 and 14 February 1941.

The arrival of more units on subsequent convoys enabled a firm base to be established at Tripoli, although the tanks of the 5th Panzer Regiment were not unloaded until 10/11 March. Rommel's armoured force now comprised twenty Panzer IVs, seventy-five Panzer IIIs, forty-five Panzer IIs and twenty-five Panzer Is. The day after the tanks' arrival, Rommel decided to lay on a show of force, as his personal aide, Lieutenant Heinz Werner Schmidt, described later:

> Rommel's Panzer parade took place in the main streets of Tripoli the next day. It was a bright sunny day, but the Italian population did not seem to show a great deal of interest in this display of might … Singly and at regular intervals the Panzers clattered and rattled by. They made a devil of a noise on the macadamized streets. Not far past the saluting base the column turned into a side-street with mighty squeaks and creaks. I began to wonder at the extraordinary number of Panzers passing, and to regret that I had not counted them at the beginning. After a quarter of an hour I noticed a fault in one of the chains of a heavy Mark IV Panzer, which somehow looked familiar to me although I had not previously seen its driver. Only then did the penny drop, as the Tommies say, and I could not help grinning. Still more Panzers passed, squeaking and creaking round that bend.

Rommel's simple bluff of ordering his tanks to drive around Tripoli in a continuous stream fooled British Intelligence in Cairo, who were soon reporting that the German armour had arrived in far larger numbers than was

actually the case. Soon after the German force arrived in Libya it received a new title: the Deutsches Afrika Korps (DAK), with Rommel in command. The force also included the Italian Ariete Division.



A Panzerjäger I being unloaded at Tripoli, April 1941.

A Kleiner Panzer Befehlswagen command tank rolls past an abandoned British Matilda II.

Panzer IIs of the Afrika Korps in the Libyan desert.

The establishment and reinforcement of the Afrika Korps in Libya was not without its problems, with supply convoys menaced by British submarines and aircraft based on Malta. Although most convoys got through to Tripoli unscathed, two freighters were torpedoed and sunk off the Tunisian coast on 9/10 March, and two more were torpedoed on 28 March. The biggest loss during this period was sustained on 16 April when a convoy of five freighters was intercepted by British destroyers from Malta and completely destroyed. Over 1,700 Axis troops were lost, as well as tanks and other equipment.

The formidable Field Marshal Erwin Rommel.

Only hours after the parade in Tripoli the reconnaissance element of 5th Panzer Regiment, including some of the division's Panzer I and IIs, accompanied by an armoured car detachment, was pushing out from the eastern suburbs of the port towards El Agheila, where the forward units of the British Western Desert force were reported to be. As part of their reconnaissance task, the light tanks were to assess the suitability of the desert terrain for operations by the heavier Panzer III and IV vehicles, which were to form the spearhead of Rommel's subsequent campaign in Cyrenaica. It was not generally known at that time that Rommel had already given some of the armoured units destined for Africa desert training – in Germany. On a sandy peninsula on the Baltic coast, he had found terrain that approximated to that in Libya and during the relatively short time there he had devised

solutions to potential tactical and maintenance problems, which included the installation of tropical filters in the Panzer Is. The troops had lived and worked there in overheated barracks and conditions that included artificial sandstorms, surviving on strictly rationed water and limited food, so that by the time they stepped ashore in Tripoli they knew something of what they might expect in desert warfare.

The reconnaissance towards El Agheila reported only weak British units to the east, which was true, as the Western Desert Force was recuperating after its successful campaign against the Italians in December and January, so the energetic Rommel decided to launch a full-scale offensive in March. The Allied forces were soon retreating in disorder; while the Australian 9th Infantry Division fell back on the fortress harbour of Tobruk, the remaining British and Commonwealth forces withdrew a further 100 miles (160km) east to the Libyan–Egyptian border. With Tobruk under siege by the main Axis force, a small battlegroup continued to push eastwards. It captured Fort Capuzzo and Bardia then advanced into Egypt, and by the end of April it had captured Sollum and the strategically important Halfaya Pass. Rommel garrisoned these positions and reinforced the battlegroup, ordering it on to the defensive for the time being. The dash through Cyrenaica, however, had reduced Rommel's Panzer force to only twenty-five operational tanks by 11 April, and it took several more days before strenuous efforts by the Afrika Korps' engineers increased the available total to thirty-eight. By now, welcome reinforcements were starting to arrive in the shape of the leading echelons of the 15th Panzer Division, which were soon in action around Tobruk.

The Panzerjäger I provided invaluable support for Rommel’s armoured divisions in North Africa.

On 1 August 1941 the 5th Light Division was redesignated 21st Panzer Division, and in September it joined with 15th Panzer Division to form Panzergruppe Afrika (Panzer Group Africa), which also included units of the Italian Ariete Division under Rommel’s command.

The cut-and-thrust of the desert fighting in mid-1941 caused considerable losses among the German light tanks. By the third week in June fifteen Panzer Is were still operational, all with the 5th Panzer Regiment, but they were regarded as being too underpowered and slow to be of any further use in tropical conditions. The 5th Panzer Regiment had only six Panzer IIs left, with twenty more in the 8th Panzer Regiment of 15th Panzer Division. An Afrika Korps appraisal considered that the Panzer IIs had worked out well as Company HQ section vehicles, and in the reconnaissance role, although they had suffered technical troubles, the worst of which was leaf-spring breakages.

Much of the armoured strength of the Deutsches Afrika Korps (DAK) comprised Italian tanks like this M.13/40 medium tank.

Well into 1942, Rommel continued to rely on the Panzer II for reinforcements.

A Panzer II kicks up a cloud of dust as it travels across desert terrain at speed.

Some much-needed reinforcements arrived in September, including about fifty tanks, most of which were Panzer IIs. Above all, Rommel needed Panzer IIIs and IVs, but the demands of the Russian front now absorbed much of the production.

The Panzer II therefore remained on the inventory of the Afrika Korps throughout 1941 and into 1942, but its numbers began to dwindle thereafter as combat attrition, mechanical problems and attacks on Rommel's supply convoys took their toll. By the end of 1941 Rommel had more Italian light tanks at his disposal than German ones, in particular the Carro Armato M13/40, which was produced in substantial numbers and was armed with a 47mm gun.

Although Rommel continued to achieve staggering successes, culminating in his victory at Gazala in June and the subsequent drive to the Egyptian frontier, the defeat of the Axis forces at El Alamein and the Allied landings in North Africa in November forced them into a long retreat that ended in Tunisia, pounded all the way by the squadrons of the Desert Air Force, which now included dedicated anti-tank units, the latter armed with the Hawker

Hurricane IID, equipped with two 40mm Vickers Type ‘S’ cannon. This installation had been tested experimentally in September 1941, and production aircraft began to reach the Desert Air Force squadrons in April 1942. The combination of Hurricane and ‘S’ gun came into its own in June, as the British Eighth Army withdrew from the Gazala Line. The Hurricanes flew intensively during the withdrawal and increasing numbers of enemy vehicles fell victim to the ‘S’ gun, whose shells could pierce the armour of any German or Italian tank then opposing the Allied forces in North Africa. On 18 June 1942, for example, Hurricanes intercepted a column of tanks and troop carriers advancing into the Sidi Rezegh area southwest of Tobruk and mauled it so severely that it retreated, leaving eighteen tanks and trucks ablaze.

Although the Panzer II had almost disappeared from the Afrika Korps’ inventory by mid-1942 (only fourteen Panzer IIs remained operational on 15 August, the rest having been destroyed or withdrawn for conversion to sub-variants) the chassis of both the Panzer I and II continued to serve in North Africa in a variety of other roles. For example, the 605th Anti-Tank Battalion, which had arrived in North Africa between 18 and 21 March 1941, was armed with twenty-seven Panzerjäger Is; thirteen were lost in the battles around Tobruk, but replacement vehicles raised the battalion’s strength to seventeen at the beginning of the Gazala battle in June. Eleven were still in action in November, at the time of Alamein. The vehicle, which was poorly protected, was not popular with its crews – there were other problems too. According to one German report:

> The accuracy of this weapon was commented on. It will usually hit its target with the first shot at ranges up to 1,000 metres (1,100yd). However, its penetration qualities were far too low for the necessary combat ranges in the North African desert. In one case, three Mk II (Matilda II infantry tanks) were penetrated at a range of 400 metres (440yd) by 4.7cm armour-piercing shells (Pz. Gr.40). It will usually penetrate 60 millimetres (2.4in) of armour. The 4.7cm armour-piercing shell (Pz.Gr.36(t)) will not penetrate a Mk II at 600 to 800m (660 to 870yd) but the crew will abandon the tank because fragments spall off

the armour on the inside.

The chassis, engine and suspension were constantly in need of care due to the additional weight of the anti-tank gun.

The Balkans

Rommel's campaign in North Africa had scarcely begun when the Axis opened a second front. On 6 April 1941, German, Italian and Hungarian forces invaded Yugoslavia, the German offensive being supported by six Panzer divisions that included fifty Panzer Is and forty-five Panzer IIs as well as numerous other types of light tank such as captured French Renault and Hotchkiss vehicles. On the same day Greece – where an Italian campaign had ground to a disastrous halt – was also invaded by the Germans. In this campaign too light tanks played an important part, and would continue to do so during the subsequent occupation of both countries, which would include many anti-partisan operations.

The British Army in North Africa 1941. A9 Cruiser Mk I tanks on the move near Tobruk, 12 September 1941

A captured Panzer II near El Alamein, Egypt, in August 1942.

A knocked out German Panzer II in Libya.

Despite a substantial intervention by British Commonwealth forces the Balkan campaign was speedily concluded, although it led to a consequence that would ultimately prove disastrous to other German operations in the east. It delayed Hitler’s planned offensive against Russia, which had been due to be launched in May, by several weeks. There would be no speedy victory in Russia now before the onset of winter.

Operation Barbarossa

When the Germans launched Operation Barbarossa, the invasion of the Soviet Union, on 22 June 1941, their order of battle included 152 Panzer Is, the majority serving with Panzer regiments 21 (forty-four), 27 (forty-two) and 29 (forty). The rest were assigned to Panzer regiments 33 and 39 (eight and twelve respectively) and Panzer Brigade 18 (six).

Hotchkiss light tanks, captured during the campaign in France, were widely used by the Wehrmacht in Yugoslavia

Light tanks comprised about half the German armoured force, with 767 Panzer IIs and 780 Czech-built Panzer 35(t) or 38(t) vehicles deployed as follows:

1st Panzer Regiment, 1st Panzer Division: 43 Panzer II
6th Panzer Regiment, 3rd Panzer Division: 58 Panzer II
35th Panzer Regiment, 4th Panzer Division: 44 Panzer II
11th Panzer Regiment, 6th Panzer Division: 45 Panzer II, 155 Panzer 35(t)
25th Panzer Regiment, 7th Panzer Division: 53 Panzer II, 167 Panzer 38(t)
10th Panzer Regiment, 8th Panzer Division: 49 Panzer II, 118 Panzer 38(t)

A Panzer I command tank destroyed during the drive into Russia, June 1941.

Russian BT-7 tanks abandoned in a river at Bialystok during the early stage of Operation Barbarossa.

33rd Panzer Regiment, 9th Panzer Division: 32 Panzer II
7th Panzer Regiment, 10th Panzer Division: 45 Panzer II
15th Panzer Regiment, 11th Panzer Division: 44 Panzer II

29th Panzer Regiment, 12th Panzer Division: 32 Panzer II, 109 Panzer 38(t)
4th Panzer Regiment, 13th Panzer Division: 45 Panzer II
36th Panzer Regiment, 14th Panzer Division: 45 Panzer II
2nd Panzer Regiment, 16th Panzer Division: 45 Panzer II
39th Panzer Regiment, 17th Panzer Division: 44 Panzer II
18th Panzer Regiment, 18th Panzer Division: 50 Panzer II
27th Panzer Regiment, 19th Panzer Division: 35 Panzer II, 110 Panzer 38(t)
21st Panzer Regiment, 20th Panzer Division: 31 Panzer II, 121 Panzer 38(t)
100th Flamm Panzer Battalion: 25 Panzer II, 42 Panzer II Flamm
101st Flamm Panzer Battalion: 25 Panzer II, 42 Panzer II Flamm

The heavier armour deployed throughout the divisions comprised 1,011 Panzer III and 449 Panzer IV tanks.

The Panzer I was prominent in the drive of Army Group North through the Baltic states towards Leningrad. Among the forty Panzer Is assigned to the 29th Panzer Regiment of 12th Panzer Division were some Panzer I Ausf F tanks drawn from No. 1 Company of Panzer-Abteilung zum besondere Verwendung 66 (66th Special Duty Tank Detachment) which had originally been formed to take part in the invasion of Crete. A few were still in use in July 1943. By that time most of the surviving Panzer Is had been withdrawn for conversion to other roles, such as ammunition carriers.

Whereas the Panzer I’s operational task in Russia was confined mainly to escorting supply convoys and policing occupied territory, the Panzer II remained in front line service for a considerable time. Its main task was reconnaissance, which often meant that it had to operate in advance of the main armoured units, relying on its speed to get out of trouble. The Panzer II amphibious tank, developed for the invasion of Britian, also proved useful in the early stages of the campaign, being capable of fording the wide Russian rivers in order to establish and hold a bridgehead on the opposite bank for long enough to enable heavier armour to be ferried across.

In September 1941 many Panzer IIs were diverted from the Leningrad and Southern Fronts to strengthen the German drive on Moscow and suffered heavy losses in the defensive battles that ensued. Some of these losses were made good by continued production – 275 Panzer IIs were built in 1941 and a

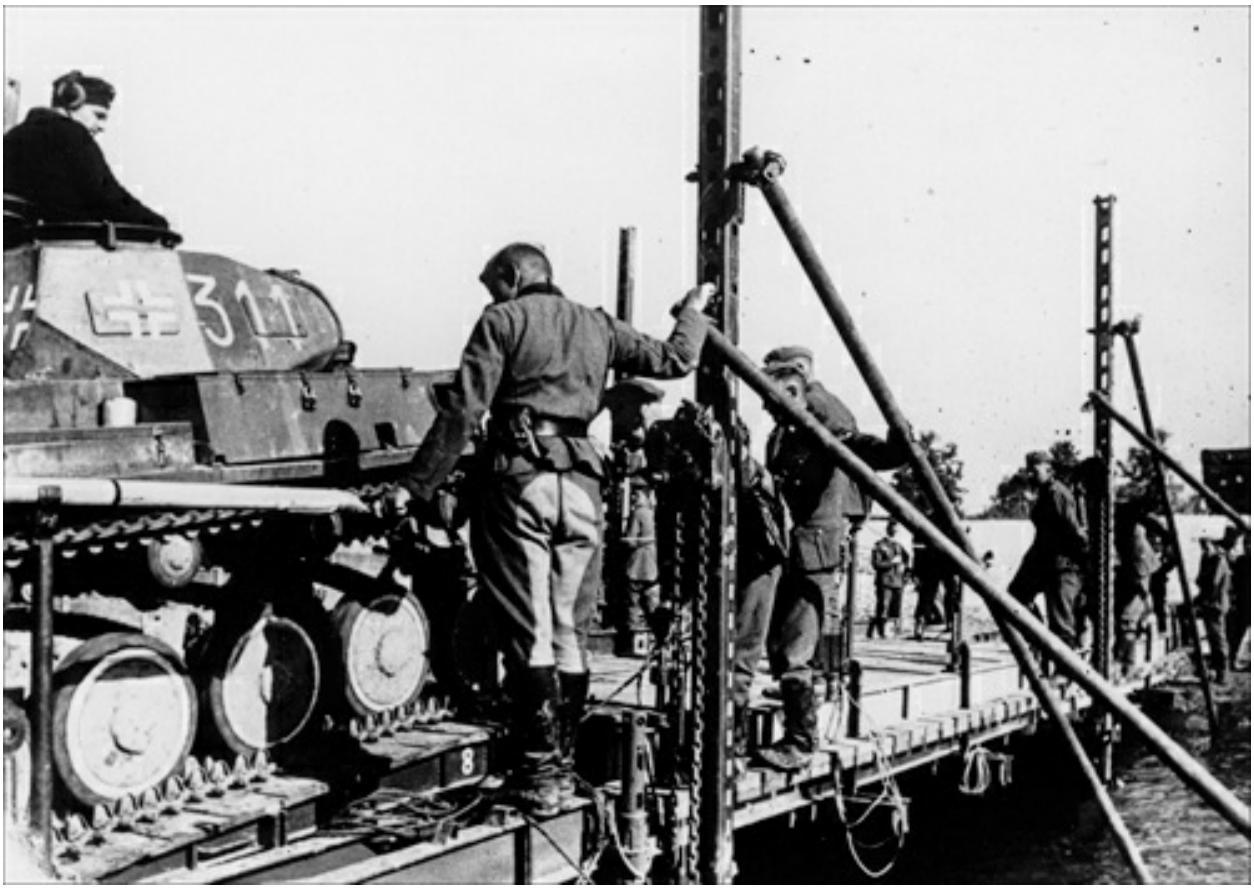
further 305 in 1942 – but the numbers deployed operationally were dramatically reduced as vehicles were progressively withdrawn for conversion to anti-tank and SP gun sub-variants. Nevertheless, the standard tank version of the Panzer II was still in use with combat units at the Battle of Kursk in July 1943.

Northwest Europe, 1944–45

Although the Panzer I and II had almost disappeared from the inventory of the Wehrmacht by the time the Allies landed in Normandy in June 1944 – with the exception of some used by training units – their anti-tank and SP gun derivatives remained in evidence until the end of hostilities. The most successful of the latter was the Leichte Feldhaubitze 18 auf Fahrgestell Panzer Kampfwagen II Wespe (Wasp), which had performed so well on the Russian front since its deployment in 1943 that Hitler ordered all Panzer II chassis production to be dedicated solely to the Wespe at the expense of other projects, including the Marder II self-propelled antitank gun.

These three photographs show Panzer II light tanks advancing into Russia, 1941.

A Panzer II Ausf C equipped with flotation gear being offloaded.



A Panzer II crossing the Don, 1942.

A Panzer II (left) and Panzer III of SS Division Nord in Karelia, 1943. This was the only Waffen-SS division to fight inside the Arctic Circle.

A Wespe self-propelled gun destroyed in Normandy, 1944.

FFI and French civilians with a captured German Wespe ammunition carrier, 30 August 1944.

A Russian family, liberated from German occupation, seated on the wreck of a German Panzer IV, the victim of a T-34.

A line-up of German and Italian AFVs during a display of captured enemy equipment, 2 June 1944. In the foreground can be seen StuG IV and Stug III assault guns with two Marder tank destroyers behind. In the background two Italian Semovente SP guns can be seen.

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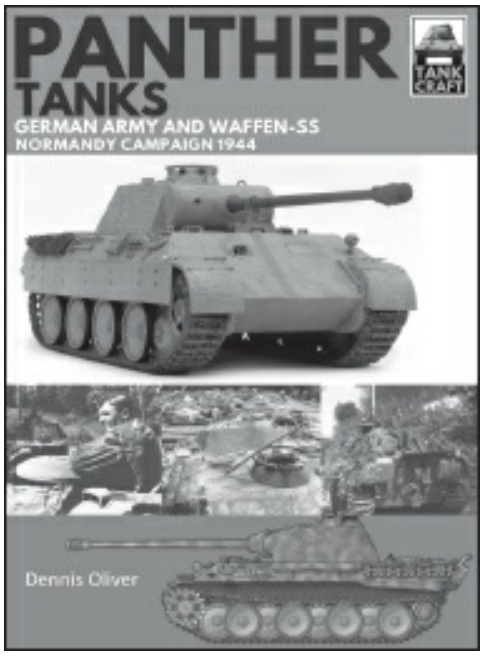
PANTHER TANKS

GERMAN ARMY AND THE WAFFEN-SS, NORMANDY CAMPAIGN 1944

Dennis Oliver

Central to the German strategy of dealing with an Allied landing in France was the availability of a strong, mobile armoured reserve. In June 1944, as part of this force, the Army in the West was able to deploy over 300 Panther tanks, perhaps the best armoured fighting vehicle produced by Germany during the Second World War. In this book, his third in the TankCraft series, Dennis Oliver uses archive photographs and painstakingly researched, exquisitely presented colour illustrations to examine the part these powerful tanks played in the Normandy battles and also the battalions that operated them.



A destroyed German tankette near Konjic, Serbia, 1943